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Early peer play: The roles of temperament
and
socio-emotional understanding in young
children's social competence

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Submitted for the degree of Doctor of Philosophy

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Declaration

I hereby declare that this thesis has not been and will not be, submitted in whole or in part to another University for the award of any other degree.

Signature:

.....

Kay H. Mathieson

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A doctoral thesis is never the work of a single person and many have contributed to this one in a host of different ways. Firstly, of course, the research would not have been possible without the children, parents and practitioners who provided information for the data collection for which I am very grateful.

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UNIVERSITY OF SUSSEX

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ABSTRACT

Peer interactions are recognised as playing a key role in the development of children, but we lack detailed analysis of individual differences in the early peer play of preschoolers. Five data sets are used to explore aspects of children's developing social competence between the ages of 2 and 5 years. Four of the five research investigations were carried out in day nurseries, and the remaining study was conducted in a reception class (children aged 5 years), all in a London Local Authority.

The first paper explores core elements of peer play which can be identified through direct observation. It serves the dual purpose of highlighting children's real life experience of making social connections through peer interactions and exploring the key dimensions of verbal and nonverbal behaviour that support such connections. Papers 2 and 3 are mainly focused on exploring the different perspectives of parents and practitioners in their views of children's current social adjustment, with additional reports on child temperament from parents and reports on peer play from practitioners. Finally, Papers 4 and 5 explore in greater depth a range of potential predictors of young children's social competence, including temperament and socio-emotional understanding.

Being able to recognise individual differences in patterns of play specifically in terms of levels of interaction and disconnection led to the use of the Penn Interactive Peer Play Scale throughout the remaining studies. The notable differences in levels of successful interactivity underlined the need to measure children's effectiveness in using a range of abilities to establish and maintain engagement with play partners. The further studies involved a total of 516 practitioner reports and 179 parent reports on children's behaviour, social competencies and temperament, as

well as 123 direct assessments of children's socio-emotional understanding. Matched parent and practitioner questionnaires were used to examine similarities and differences in adult perceptions and interpretations of children's peer play. Levels of convergence between parent and practitioner views of children's socio-behavioural functioning were found to change as children get older, from an early convergence on prosocial behaviours to a later convergence on problem behaviours.

The results also highlighted the particular roles of temperament and socio-emotional understanding in peer play. Effortful control was found to be a significant predictor of positive, interactive play. Furthermore, socio-emotional understanding – as assessed through the use of simple structured tasks and hypothetical scenarios – was found to predict patterns of interactive play, thereby evidencing the socio-cognitive factors involved in effective peer interactions. Gender differences were also evident, suggesting that girls and boys may rely on different attributes and skills to forge social connections.

The key findings are discussed with attention to their implications for effective practice in early years provision, developing our understanding of early social competence from different perspectives. Directions for further research are presented.

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General Introduction

Peer play

Peer play provides a context in which children relate to and interact with each other, often with minimal adult presence or intervention. Such opportunities can take place indoors, outdoors, at home or in a childcare setting, with children of similar or different ages. Peer play is an important part of young children's lives which not only allows them to demonstrate their current social skill levels, but also exposes them to rich opportunities for further social learning. Thus, it provides a unique context in which children establish patterns of interaction that will either enhance or diminish their chances of being liked and making positive friendships (Hartup, 1996; Parker & Asher, 1987). Such friendship experiences have been identified as important predictors of future social and academic success (Ladd, 1990; Ladd, Kochenderfer, & Coleman, 1996). Crucially though, during any observation of peer play it is immediately notable that some children are able to negotiate the complexities of interactions with apparent ease while others struggle (Hughes, White, Sharpen, & Dunn, 2000). The origins of these individual differences in levels of interactivity observed in peer play are difficult to pinpoint.

Those who are successful in the process of establishing and maintaining positive peer relationships are often described as 'socially competent'. The concept of social competence has proved difficult to define but it can be informed by a variety of data collection methods, such as direct observation and assessment tasks, as well as parent, teacher, and peer report. Each method sets out to define or identify specific behaviours, skills or outcomes which contribute to the relative social success

experienced by children. The common theme in most definitions of social competence found in the literature, as highlighted by Rose-Krasnor (1997), is *effectiveness in interaction*. As we will see, social competence has been considered with reference to the key influences of temperament, theory of mind, emotion understanding, socio-moral understanding and gender. What is not yet understood is the relative importance of each of these dimensions in developing successful social connections. Peer play provides a context in which children are independently making sense of their social world whilst harnessing their current understanding to make successful social connections in that world. It therefore provides a perfect opportunity to study the factors involved in children's emerging social competence.

This thesis explores a number of key issues related to this topic. First, social competence is manifested in a peer play context by children engaging with playmates in ways which are complementary to their current play activities. In order for children to be perceived as socially competent, their interactions should be recognised as effective in establishing and maintaining peer play relationships with a range of play partners. Observation of children's peer play therefore provides an opportunity to identify evidence of their current ability to apply skills and knowledge to engage successfully (Howes & Matheson, 1992; Parten, 1932). It also offers an insight into individual differences in characteristic play patterns and the way in which different groups interact. Detailed analysis of observations and comparison between children's interactions can also support the identification of the key components which increase the likelihood of connected play.

Second, although parents and childcare practitioners see children in different circumstances, they are still observing children's responses and interactions. The convergence and divergence in adult perceptions of children's overall socio-

behavioural adjustment is an important foundation for the relationship between parents and practitioners. If this relationship is based on respect for the unique contribution each adult brings to the shared knowledge of the child it is more likely to positively support the child's developing social competence (Howes, Rodning, Galluzzo, & Myers, 1988). However, our understanding of the patterns of convergence and divergence is still limited.

The unique contributions made by parents' perceptions will include their knowledge of a child's temperament built up over time and in a variety of contexts. From a practitioners' perspective, their special knowledge will include details of the children's characteristic play patterns in larger groups. In exploring the variation in children's ability to be socially successful it is recognised that early temperamental difficulties are associated with later behaviour problems (Caspi, Henry, McGee, Moffitt, & Silva, 1995) but the role of temperament in different dimensions of peer play – both positive and negative - is as yet unclear. Therefore the pattern of associations between these adult judgments can also inform our understanding about the significance of temperament in the development of interactive or disconnected play patterns.

Finally, given that young children's social competence will be demonstrated in their ability to establish and maintain a range of interactions with their peers, their success will depend on specific attributes, abilities, and socio-emotional understanding which enable effective interactions. For example, social competence is characterised by flexible and sensitive responses to others which require a complex set of skills and knowledge. Factors such as socio-emotional and 'theory of mind' understanding have been implicated as having central roles in developing the positive attributes related to social competence (Denham, Mason, Caverly, Schmidt,

Hackney, Caswell & DeMulder, 2001; Hughes & Leekam, 2004; Lane, Wellman, Olson, LaBounty, Kerr, 2010; Perner, Ruffman & Leekam, 1994; Peterson, 2000; Slaughter, Dennis, Pritchard, 2002; Wellman, Cross & Watson, 2001). Individual differences in such understanding should therefore be reflected in children's ability to predict and manage conflict, which is clearly an important skill in maintaining successful peer play. This ability to provide an explanation of another's actions would also be indicative of developing socio-moral reasoning and crucial to later prosocial behaviour (Malti, Gummerman, Keller & Buchmann, 2009; Keller, Lourenco, Malti, Saalbach, 2003). Thus the ability to perceive, understand and explain another's perspective, emotional experience, and motivation in a situation is expected to underpin a child's subsequent actions.

Further, the salience of particular understanding (i.e., socio-emotional and theory of mind understanding) would be likely to vary at different points of development. In examining these connections, it is important to recognise that social competence is not just viewed from an adult perspective. Peers too are aware of each other's ability to engage and interact successfully. It is crucial therefore to consider children's real life experience and to explore differences in adult and peer perceptions of social competence. For example, measures of socio-emotional understanding may be related in different ways to adult ratings of interactive play versus peer nominations of children with whom they might like to play. Indeed, although theory of mind and emotion understanding has increasingly been the subject of research, clarity about specific connections with a child's social competence remains elusive.

To summarise, this thesis is designed to contribute to the existing literature relating to the development of young children's social competence, with a particular

focus on the peer play context. Understanding individual differences in the development of social competence has been a major focus of recent developmental research. The basic research questions in this thesis are concerned with individual differences in peer play patterns and the elements which shape these early play experiences. In particular, socio – emotional understanding and temperament are explored with regard to their associations with parent and practitioner ratings of children’s peer play, overall socio-behavioural adjustment, and most-liked sociometric nominations.

A theoretical model of social competence

Rose-Krasnor (1997), as previously mentioned, defines social competence as *effectiveness in interaction*. As she points out, definitions of social competence in previous literature have been related to one of four general approaches: identifying key skills which can be learned through training programmes and recorded using checklists, impact on sociometric status (i.e., peers’ perception of the relative success of social interactions), maintenance of friendships, or functional outcomes (i.e., the achieving of specific social goals). Rose-Krasnor argues that each approach has inherent difficulties in encompassing the interplay between identifiable skills, understanding, contextual flexibility and consistent effectiveness which can be demonstrated by socially competent individuals. A definition that is skills-based omits the importance of the appropriateness of responses and leads to complications about the relative importance of different skills. On the other hand, focusing on sociometric status as a guide to social competence takes no account of popularity within a deviant group or the means by which popularity is secured. In a similar way, relationship-based definitions of social competence are not sensitive to the quality or positivity of the interactions. Finally, to use a functional outcome-based definition is

to highlight the achievement of specific goals, which does not fully include the possibility of there being multiple outcomes that vary in success and desirability. Moreover, social competence does not just involve building an understanding of ‘others’ and how they are observed interacting. It is also necessary to be able to develop understanding of the ‘self’ as an influence on the interaction. Therefore a further difficulty with each of the previous approaches to definition is the need to balance the expressed importance of both self and others in interactions.

In response to the difficulties identified with the previous definitions, Rose-Krasnor addresses the complexities of social competence through a multi-level model that takes into account individual skills, engagement with self and other, contextual influences and theoretical understanding of effective interactions. This model, conceptualised as a prism, identifies three levels of organisation related to social competence. The lower level of the prism represents the individual skills which need to be employed. The mid layer is divided into “self” and “other” domains, highlighting the need to balance achieving personal goals and being responsive to others. Being socially competent requires elements from both of these layers to be evident in interactions. Rose-Krasnor argues that once interactions are characterised by fluency between the elements of the lower levels of the prism and reciprocity with others in the interaction, social competence can no longer be identified as isolated behaviours or skills. The apex of the prism then represents a theoretical level which emphasises social competence as transactional, context-specific and effective in typical rather than contrived situations. Developmentally applied, this model would seem to accommodate the acquisition of skills which are gradually integrated into understanding “self” and “other” perspectives before finally being demonstrated as seamless responsiveness in interactions. The fundamental

difference between this prism model and previous definitions is in providing a framework that takes account of the multifaceted nature of social competence as experienced in real life. It clearly demonstrates that skills are only useful if connected to application in real contexts, balancing the needs of self and others in the pursuit of effective interactions.

In early peer play, according to Rose-Krasnor's prism model, children are developing fluency in their use of specific skills. At the same time, they are becoming aware that their own and other's goals may conflict. Therefore, their peer relationships are providing a context for increasing experience of effectiveness in interaction. The present studies thus focus on peer play as a crucial context for the application of these skills in interaction, and for understanding individual differences in such competence. For example, if the majority of children in a particular age range are able to recognise emotions communicated through facial expressions they should be more likely to be responsive in their play interactions with other children. Those who demonstrate less emotion understanding, on the other hand, may be more likely to follow their own agenda without reference to how others are responding and thereby display more disruptive or disconnected patterns of play.

Thus, we predict that children who are able to fluently use awareness of their own and others' emotions and intentions – and who can manage or regulate their levels of reactivity – are more likely to be judged by both adults and peers as interactive in their play and therefore as desirable play partners. However, whilst the Rose-Krasnor model conceptualises each component of social competence, the uneven progress and interdependence between them are not communicated, something which is of particular importance in the early stages of children's social development. Nor is the salience of specific concepts such as emotion understanding

or theory of mind highlighted. In essence, then, the model is helpful in conceptualising ‘perfect’ *effectiveness in interaction* but does not elucidate the developmental journey nor atypical situations in sufficient detail.

Socially competent peer play. Observing children’s early peer play can provide clear insights into characteristic patterns of interaction and children’s use of relevant skills and understanding. A long-established research focus on behaviour problems in recent years (e.g., DeRosier, Cillessen, Coie & Dodge, 1994; Dodge, 1980; Pettit, Bates & Dodge, 1997) has resulted in an expansive understanding of both externalising (i.e., overt aggression, disruption) and internalising (i.e., fearful, withdrawn) difficulties. There has been somewhat less interest, however, in understanding prosocial and socially competent behaviour in early peer play. Patterns of behaviour identified as indicating prosocial responses in common screening tools include showing consideration of other’s feelings, sharing, being helpful and kind (Goodman & Scott, 1999). By concentrating specifically on peer play as a social context and working with both parents and practitioners in early years settings, Fantuzzo and colleagues developed an assessment tool that explores more comprehensively the variety of individual differences in patterns of play. They identified three characteristic dimensions of play behaviour, namely interactive, disconnected and disruptive play. The authors describe specific observable behaviours which they found to be associated with each dimension of play. Interactive play, for example, was indicated when children were typically observed sharing ideas, helping others, settling conflicts and encouraging others to join games. In contrast, disconnected play was characterised by children observed hovering outside play, refusing to play, needing adult help to engage and withdrawing from play. Finally, disruptive play was associated with starting fights, arguing, being

rejected, showing temper and destroying other's things (Fantuzzo, Sutton-Smith, Coolahan, Manz, Canning, & Debnam, 1995).

Given that prosocial behaviour and peer friendships have been shown to predict positive social adjustment and school achievement, these careful descriptions of different peer dimensions are particularly important. The information gained can then inform the provision of a supportive environment that encourages such relationships and enables recognition of early signs of difficulty in making social connections. However, this initial description of children's characteristic play patterns, while useful, requires additional detail relating to other specific components which contribute to social competence. We must therefore turn to a number of variables likely to be involved in the range of individual differences seen in children's emerging social competence.

Temperamental influence on social competence. One set of crucial influences on children's social interactions concerns their profiles of emotional reactivity and self-regulation, identified as dimensions of the children's temperament. The nature of such stable attributes has been the focus of much previous research (Caspi et al., 1995; Parker-Cohen & Bell, 1988; Rothbart, 1981; Seifer, Schiller, Sameroff, Resnick & Riordan, 1996). For example, Rothbart et al's (2001) Children's Behavior Questionnaire (CBQ) has been used to indicate adult perspectives on children's temperament. The shortened version of the CBQ used in the present investigation has been developed over time to identify specific constructs that have been shown to be indicative of arousability, attentional focussing and emotional reactivity. Ratings are obtained for the three critical dimensions of Effortful Control (i.e., being able to inhibit reactivity and focus attention as emotion arousal increases), Surgency/Extraversion (i.e., positive emotionality and approach, as well as

impulsivity and activity levels) and Negative Affect (i.e., negative emotionality, such as being sad, fearful, difficult to soothe). Particularly for young children, parent reports are generally used to assess the relative balance of temperamental dimensions. The advantage of this is that parents have knowledge of the child over time and in a variety of situations. However, they do not necessarily have insight into a child's responses in an independent context such as during peer play. Thus, the relevance of temperament for peer play needs careful attention through empirical investigation.

In fact, research has consistently shown associations between temperament and behaviour (Eisenberg, Cumberland, Spinrad, Fabes, Shepard, Reiser, Murphy, Losoya, & Guthrie, 2001). For example, children who are easily frustrated and respond with anger would tend to be rated highly on the temperament dimension of negative affect (Berdan, Keane, & Calkins, 2008). However, the role of temperament in *facilitating* socially competent and prosocial behaviours is somewhat less clear. Surgency/Extraversion may be important for stimulating social activities, but the activity level implied by high surgency may or may not be conducive to positive interpersonal interactions (Berdan, Keane, & Calkins, 2008). For example, there may be specific social gains where higher activity levels result in positive approaches to join or initiate interactions (Caspi, et al., 1995), but the ability to manage high activity levels may be crucial in determining whether the interactions are successful or not. In comparison, effortful control is likely to be a consistently helpful attribute in promoting social competence. The capacity for self-regulation implied by high scores on this dimension is significant for dealing not only with one's own emotions but also with those of others present in the situation (Blair, Denham, Kochanoff, & Whipple, 2004). Previous research has shown Effortful Control to be demonstrated

particularly in children's regulation of emotions, internalisation of rules, and attentional focussing. As such, this ability to override impulses in favour of subdominant responses has been positively related to both social competence and successful early adjustment to school (Fabes, Martin, Hanish, Anders, & Madden-Derdich, 2003; Kochanska, Murray, & Harlan, 2000). Thus the ability to manage and moderate reactivity in response to social cues and changing contexts is a likely critical factor in making successful social connections during peer play.

Understanding how individual differences in self-regulation are associated with patterns of interaction in social and emotional situations is a crucial first step in our search for effective intervention to help those for whom this is difficult. It should be recognised that two overlapping lines of enquiry have been pursued, on the one hand exploring the 'effortful control' aspect of temperament, and on the other studying inhibitory control as a crucial aspect of executive function (Morgan & Lilienfeld, 2000; Rothbart, 1981). Although poor executive function has been linked to problem behaviours (see for example Hughes et al., 2000), the present investigation addresses effortful control primarily in the context of the role played by different temperamental dimensions in children's development of interactive patterns of peer play.

The role of socio-emotional understanding in peer play

Notwithstanding the possible role played by temperamental dimensions such as effortful control, a range of other factors are likely to be important for explaining individual differences in peer play, including emotion understanding, theory of mind and socio-moral reasoning. Moreover, the effects of these aspects of socio-emotional understanding on peer play may be moderated by gender.

Theory of mind understanding and its influence on social competence. The term “theory of mind” is readily used to indicate the understanding of one’s own and other’s mental states such as beliefs, desires and intentions. The recognition of such mental states, and how these inform our own and other’s behaviour, is a fundamental part of human experience (Carpendale & Lewis, 2006; Moore & Corkum, 1994; Tomasello, Carpenter, Call, Behne, & Moll, 2005). Traditionally, definitions of theory of mind have focused only on the representational mental states (i.e., belief and knowledge) but more recently a wider range of mental states including perception, intention, desire and emotion have been recognised as further aspects of children’s ‘theory of mind’ (Hughes & Leekam, 2004). Insights into this wide array of mental states enables children to understand others as existing in and seeing the world from their own mentalistic perspective. This is important as children begin to recognise that these differences in perspective result in people responding differently to situations and events. For example, a crucial element of understanding other’s mental worlds is realising not only that other’s actions may be directed towards achieving a particular goal, but also recognising the beliefs which have led to the intention (Hughes & Leekam, 2004).

There continues, however, to be debate about the way in which theory of mind understanding develops and is demonstrated in young children (Flavell, 1999; Wellman, et al., 2001). False-belief understanding in particular has become established as a key indicator of the acquisition of theory of mind understanding. It has been asserted that this form of understanding is typically apparent from around 4 years old and can be demonstrated using the standard false belief task (Freeman & Lachoe, 1995; Moses, 2001; Sabbagh, Moses, & Shiverick, 2006). This task requires a demonstration of the understanding that a person will act on a belief that

others know to be untrue. To achieve this it is argued that it is necessary to hold in mind a representation of another's perspective in order to compare with one's own current belief. False-belief understanding is also seen to be significant in indicating theory of mind because of the relatively poor response of atypically developing groups. Considerable social impairments, such as those demonstrated by children with autism, have been significantly linked with reasoning about mental states (Baron-Cohen, Leslie & Frith, 1985). For example, children with autism have been found to routinely fail standard false belief tasks at ages where their typically developing peers are able to demonstrate the ability to understand other's false beliefs (Hobson, 2009; Hughes & Leekam, 2004). This is taken to suggest that perspective taking and awareness of others mental states are either absent, developmentally delayed or progressing via a different trajectory for these atypical populations.

Notwithstanding the value of the work on false-belief tasks, the fact that children younger than 4 years are clearly able to demonstrate pretend play, teasing and deception in their peer play challenges the acceptance of the false belief task as a conclusive milestone (Lillard & Flavell, 1992; Nielsen & Dissanayake, 2000; Wellman, Lopez-Duran, LaBounty, & Hamilton, 2008). There are two specific elements of pretend play that make it significant in relation to theory of mind understanding. It is important firstly because it involves one thing representing another which requires holding in mind the reality while acting in line with the pretense. Secondly, when others are also engaged in the pretense there has to be communication of meaning for participants to be able to take part and demonstrate a shared understanding of the altered reality. In response to the challenge of observed real life experiences of children such as pretend play, deceit and teasing there is

growing agreement that false-belief constitutes but one aspect of theory of mind understanding (Peterson & Slaughter, 2006; Wellman & Liu, 2004).

Children regularly found to engage in pretend play have also been found to make reference to mental states more frequently (Hughes & Dunn, 1997). Within a peer play context, pretend play demands more cooperative interactions as children negotiate, develop play themes and resolve conflicts. It is therefore likely to be an important context in which children are able to explore and learn about reciprocal social interactions. Specifically, they can learn that people do not always feel the emotion they demonstrate, can show emotions related to current mood or previous emotions related to similar events, and can experience conflicting emotions at one and the same time. The ability to construct a shared reality is complex, but also provides an intense experience of orchestrating one's own emotions with others to sustain the play sequence. In fact it has been suggested that pretend play may provide specific opportunities for developing theory of mind understanding (Lillard, 1993).

Abilities related to theory of mind understanding such as being able to predict other's responses, or reflect and learn from interactions would intuitively be expected to enhance social interactions. In particular, being able to modify one's own response in light of another's reaction would be likely to produce empathetic and reciprocal interactions. This responsiveness would be expected to facilitate popularity and high peer group status. In other words an advanced understanding of the mentalistic activity of self and other should lead to the child being viewed as a sophisticated and desirable social partner. This development is expected to occur for typically developing children during the preschool years and coincides with increasing engagement in peer play with siblings and friends (Finkelstein, Dent, Gallacher & Ramey, 1978; Galluzzo, Matheson, Moore & Howes, 1988; Hay, Payne &

Chadwick, 2004). As the facility with language is also developed children are more able to sustain connected conversation and take part in mutually engaging play sequences. This described trajectory is seldom played out for the atypical populations previously described (i.e., those with autism) even though some ability to understand pretence has been shown in experimental situations (Kavanaugh & Harris, 1994). This suggests that theory of mind understanding not only is developed *within the context of* children's engagement with pretend play, but also is likely to *influence* subsequent choice of play partners. However, the evidence is not conclusive or comprehensive that individual differences in theory of mind understanding accounts for variation in peer social status (see Banerjee et al., in press; Slaughter et al., 2002). Therefore further exploration is needed of the role of theory of mind understanding in the development of early peer play.

Emotion understanding and its influence on social competence. Turning now to a more specific dimension of social understanding, emotion understanding encompasses the elements of naming, recognising and predicting emotions as core skills. These basic skills are normally communicated in the context of a social interaction, which increases the complexity considerably. Firstly, there will be more than one participant, so there is a need to understand another's emotions. Secondly, because one of the participants will be the self, understanding one's own emotions in relation to those of others is also central to the likely success of the interaction. Thirdly, one must take into account the distinction between people's displayed emotions and their private mental states.

In the context of an effective interaction a crucial skill is to be able to interpret and manage emotional responses. Halberstadt, Denham and Dunsmore

(2001) use the depiction of a pinwheel structure to highlight the constant ebb and flow of emotions within social interactions and their response to external influences (i.e., the pinwheel spins fast, slow, evenly, unevenly as a consequence of the wind catching it). This pinwheel metaphor also incorporates the sense of the seamless integration of the elements of social competence. The model identifies three key elements, namely sending, receiving and experiencing affective messages. Within each element it is suggested that there are four abilities: awareness, identification, social context and regulation. Halberstadt and colleagues (2001) suggest that these abilities develop in sequence as children mature.

Although the pinwheel model is helpful in conceptualising the interplay of the elements of social competence it does not highlight the way in which social competencies may be employed differently in the context of each unique relationship. Whilst awareness and identification of emotions can be identified as discrete skills, research also shows that children's ability to identify the causes of emotions is more readily demonstrated in the context of a particular relationship (Dunn & Hughes, 1998). For example, as discussed in more detail later, parental responses to children's emotional states have been linked to the development of children's own emotional sensitivity, offering further evidence of the salience of the particular emotion being increased or diminished by the experience of a particular relationship (Tronick, 1989; Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992).

In a peer play context children experience a range of relationships in which the emotional content will ebb and flow between playmates. Children who are able to demonstrate fluency in their responsiveness to this changing scene are likely to be perceived well by playmates. In fact, the use of emotional vocabulary has been

shown to relate directly to measures of likability (Fabes, Eisenberg, Hanish, & Spinrad, 2001), and emotion understanding was shown by Ensor and colleagues to be a significant predictor of prosocial behaviour, after controlling for language ability (Ensor, Spencer, & Hughes, 2010). However, as Ensor et al. point out, this should be cautiously interpreted because of the obvious close developmental links between emerging language and emotional awareness at this stage. Furthermore, in a response to the Halberstadt model, Eisenberg (2001) explores in more depth the necessity for self-regulation across each of the abilities. The complex role of emotion both as a precursor to and consequence of an event would potentially make increased demand on self-regulation abilities (Eisenberg, 2001; Eisenberg & Spinrad, 2004; Ensor, et al., 2010).

Indeed, the impact of emotion understanding on social competence clearly relates to the ability to regulate one's own emotional responses so that the balance between the needs of self and the other in the interaction is maintained appropriately. To always dominate or be dominated in interactions is unlikely to be either socially helpful or appropriate. Further, peer play where there is minimal intervention from adults is likely to involve frequent conflicts. Children who are able to recognise and predict the early warning emotional signals and understand their significance are most likely to be able to regulate their own responses appropriately to deal with the situation. Particularly in the peer interactions between young children the regulation of emotions will be a developing skill. However, although all children are likely to struggle with this process, research has found that peers view those able to moderate their responses most effectively as more likeable (Denham et al., 2001; Parker-Cohen & Bell, 1988).

In sum, the relationships a child experiences give rise to complex situations in which important competencies develop, including being able to name, recognise, regulate and respond to emotional stimuli whether generated by the context, other participants or themselves. While it is reasonable to expect that children with more advanced emotion understanding will be viewed as more socially competent we do not have detailed data in relation to peer play interactions. In particular, it is not clear if higher levels of emotion understanding do indeed lead to children being perceived by adults as more interactive in their peer play than their peers, or to children achieving an enhanced peer status.

Socio-moral reasoning and its influence on social competence. As Lane and colleagues (2010) point out, theory of mind and emotion understanding are necessary for mature social cognition and they also influence reasoning and decision making about other's reactions. However, it is also important to stress that social understanding needs to be examined specifically within the context of moral judgments and reasoning.

Piaget highlighted the child as an active agent impacting on his or her own environment but also developed the idea that children's peer interactions are fundamental to their understanding of other's intentions and therefore moral understanding (Beilin, 1992). Intuitively, being able to make sense of our own and other's motivation in a given situation provides vital information needed to judge the merit and likely consequence of an action. Such thinking inevitably underpins the development of socio-moral reasoning. Research related to socio-moral reasoning has traditionally developed in two separate disciplines, the first stemming from studies about aggressive behaviour and the second concerning morality. More recently, attempts have been made to bring the two approaches together because of

the conceptual overlap and shared importance of social cognition and behaviour (Arsenio & Lemerise, 2004). The way in which children understand the motives and intentions behind other's behaviour is crucial to their reasoning and decision making process, which in turn leads to their response. This understanding and social information-processing develops over time and previous experiences are clearly used to compare with the new situation and inform responses (Crick & Dodge, 1994). However, moral reasoning is further complicated by the crucial element of dealing with moral dilemmas such as the need to make a choice between attending to another's needs before one's own. The combination of recognising and interpreting emotional responses and understanding these from another's perspective facilitates flexibility in reactions but also underpins the development of moral understanding.

Studies exploring young children's moral understanding have used victimisation scenarios to identify children's attribution of emotions to the transgressors. In the "happy victimiser" situations described by Keller and colleagues (2003) there were three possible outcomes: 1) the victimiser is happy to have achieved his or her goal, 2) the victimiser feels bad because they might be caught/punished (i.e., the focus is on victimiser's interests), 3) the victimiser feels bad because of the harm inflicted (i.e., the focus is on the moral rule and the victim's loss or pain). The third example demonstrates the moral stance and studies consistently show that most children who attribute negative feelings go on to support them with genuine moral reasons without reference to possible sanctions (Keller et al., 2003; Malti et al., 2009; Nunner-Winkler & Sodian, 1988). Given the links between social cognition and behaviour, early indications of children's ability to demonstrate moral awareness is likely to be salient in the development of social competence. Specifically, the abilities of demonstrating recognition of the

consequences of actions, showing concern for another's feelings and subordinating one's own needs in favour of others will clearly be important in social competence. Children's current moral thinking would be demonstrated in a peer play context in their interpretation of actions particularly in a conflict situation. A key aspect would be the child's understanding of such conflicts, as indicated by their justification of judgments about another's actions. To summarise, theory of mind understanding, emotion understanding, and socio-moral reasoning may all have a part to play in the development of social competence in childhood. Bringing together data related to these different facets of socio-emotional understanding will allow further exploration of the relationship between dimensions of social cognition in relation to social competence.

Environmental influences on social competence

The development of children's theory of mind, emotion understanding and socio-moral reasoning is a complex and multi-faceted process. Before turning to the present programme of empirical work, it is important to recognise that the socio-economic, physical, emotional and cultural context in which children are cared for are likely to have strong influences on emerging social competence. In fact, exploring the roles played by socio-emotional understanding provides us with a strong foundation for making sense of the relative impact of environmental influences on children's social competence. Below, the links between socio-emotional understanding and patterns of peer play are set in context by considering some of the background environmental factors that may be important in influencing social competence.

Family influence on social competence. Families provide the first and most temporally stable context for developing social understanding (Dunn, Davies, O'Connor, & Sturgess, 2001; Dunn & Munn, 1985). Family influences and values are endemic in a child's developing understanding of themselves and others. In fact, a range of early family experiences have been found to account for individual differences in the early social, emotional and behavioural development of young children (Hughes, Jaffee, Happe, Taylor, Caspi & Moffitt, 2005; Zahn-Waxler, Robinson, & Emde, 1992). Recent twin studies have explored the relative impact of genetic and environmental factors and suggest that while there may be genetic influences for some individual differences, a child's particular experiences such as reactions to family life events (e.g., family separation) play a considerable role in his or her development and contribute to individual differences (Hughes, et al., 2005; O'Connor & Croft, 2001; Zahn-Waxler et al., 1992). For example, Hughes and colleagues found evidence that variance in theory of mind understanding was significantly explained by such individual child experiences. This adds weight to the argument that given access to a suitably supportive environment, levels of social competence could be increased for individual children.

A significant part of a children's early development is their experience of the relationship with their parents. Parenting style may not be consciously developed but has been found to have significant impact on children's socialisation. Parental negative affect, inconsistency, harsh and coercive parenting styles have all been shown to increase the likelihood of children developing problem behaviours (Belsky, Pasco Fearon, & Bell, 2007; Guajardo, Snyder, & Peterson, 2009). As Belsky and colleagues suggest, parenting to encourage the development of prosocial behaviours would be characterised by warm, sensitive and supportive responses. A key part of

the parenting relationship is the initial attachment, usually established between the mother and the child. Where this is warm, protective and reciprocal, the suggestion is that this connection provides a positive context for the development of self/other understanding (Belsky & Fearon, 2002; Belsky & Rovine, 1988; Bretherton, 1992; Kochanska, 2001). This maternal sensitivity has further been explored and the mother's accurate identification of (and response to) the infant's mental state has been found to be a significant factor in the quality of the relationship (Meins, Fernyhough, Wainwright, Gupta, Fradely, & Tuckey, 2002). This mother-child attachment relationship is seen as an important basis for early infant understanding of being related to by another (Dunn, 2004; Fonagy, Gerely, & Target, 2007; van Ijzendoorn, 1997).

The effects of these early differences in relational experiences are likely to be mediated by the child's developing social understanding. This process is conceptualised in the Rose-Krasnor model discussed earlier. The prism model depicts social competence as being achieved initially through gaining specific skills and understanding. These, Rose-Krasnor argues would include affect regulation, empathy, communication, and problem solving. It is important to acknowledge too, as highlighted in the prism model that such understanding needs to be developed in relation to both self and others. As suggested earlier, the ability to make sense of our own and other's intentions and motivations is important in developing social competence. This flexibility of thinking and perspective taking is key to predicting and responding appropriately and achieving *effectiveness in interaction*. Consistent with this, the extent to which parents, particularly mothers, engage in talk with children about feelings, emotions and other's perspectives has been found to inform this early thinking about relationships (Dunn, Brown, & Beardsall, 1991; Ensor &

Hughes, 2008). In particular, family discussion about feelings, including conflict resolution, has been implicated in supporting young children's understanding of social situations (Dunn & Munn, 1987; LeMare & Rubin, 1987). This process may begin very early indeed: the research on mother's 'mind-mindedness' in their interactions with their infants, referred to earlier, suggests that this is a predictor of subsequent theory of mind performance at 4 years of age.

Apart from the parent-child relationship, having siblings would also seem to enhance these opportunities for learning about relationships (Cutting & Dunn, 2006; Dunn & Munn, 1985; Ensor, Marks, Jacobs, & Hughes, 2010; Volling, Youngblade, & Belsky, 1997). In fact, Perner and colleagues found that children from larger, rather than smaller, families were more successful in false-belief tasks (Perner et al., 1994). Further, having older siblings has also been shown to positively predict increased false-belief understanding (Ruffman, Perner, Naito, Parkin, & Clements, 1998). But it is not just the presence of siblings which has been found to be important but also the quality and characteristics of these relationships (Dunn, Slomkowski, & Beardsall, 1994; Perner et al., 1994). Some sibling relationships are warm, sensitive and supportive, whereas others are characterised by antagonistic and provocative interactions (Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991) potentially giving such children relatively more experience of negative interactions. As pointed out by Belsky et al., (1996), each child will have a different social experience in the family influenced by, amongst other things, birth order. In addition, the demands of sibling and peer relationships are not the same most obviously because friends can be chosen. However, previous findings have established a link between low rates of antisocial behaviour with siblings and socially competent responses with peers (Cutting & Dunn, 2006).

Socio-economic status and culture. Broader environmental factors may also be important. For example, socio-economic status (SES) has been shown to have a particular influence on behaviour, with low SES predicting poor behavioural outcomes. Dodge and colleagues found significant relationships between externalising behaviour problems and SES, suggesting that low SES is a context in which children are more likely to experience harsh parenting, inadequate supervision and exposure to violent interactions (Dodge, Pettit & Bates, 1994). There may also be more subtle influences, such as parents encouraging children, especially boys, to be able to stand up for themselves, which may communicate acceptance of some aggressive behaviours. Alternatively, Dodge et al., also suggest that in some cases parents might be over sensitive to children demonstrating problem behaviours and react in an over-controlling style of parenting which may actually promote antisocial behaviour. Although the behavioural outcomes associated with low SES are generally viewed negatively it is likely that many parents are seeking to support their children to succeed in the cultural context in which they find themselves (Dodge et al., 1994). Again, individual differences in theory of mind understanding may play a mediating role in the effects of family background on children's peer interactions and behaviour, since research shows that family background has a significant impact on the development of theory of mind (Cutting & Dunn, 1999).

More broadly, differences in the culture of a family may impact on the development of social competence especially in relation to the perception of self and other's thinking. Variation in cultural belief about the understanding of the mind and its relation to actions, for example, can be considerable. In the European culture generally, the mind is seen as the focus of mental processes, key to being able to attribute intentions to actions. In contrast, in Papua New Guinea the cultural belief

depicts the mind as unknowable and therefore not of interest. The impact on children's socialisation is that European parents are more likely to focus on the intentions leading to actions in order to inform discipline, while in Papua New Guinea discipline would be determined by the direct consequences of the actions regardless of the intentions (Lillard, 1998). While Lillard sets these cultural diversities geographically, family beliefs within any one culture will also show significant variation.

Specific cultural differences in child rearing beliefs and values are also influential. For example, the relative importance of individual independence as opposed to family interdependence will impact on the socialisation experience of a child (Vinden, 2001). Children socialised in an individualistic oriented culture will tend to be encouraged to demonstrate autonomy and responsibility for themselves. However in a collectivist culture, values and behaviours that indicate the importance of others before self are more likely to be valued. As Farver and colleagues (1995) point out, the contrast between cultures is also noticeable in the perception of the role of play in young children's development. Play may be taken to be amusement, assessed to focus on imitating others, or valued as educationally important. If the latter is true the parent is more likely to take part and enhance the play with both props and prompts, which if done sensitively could also be characteristic of a warm, responsive parenting style (Farver, Kim, & Lee, 1995). These cultural norms related to early care of children (i.e., mainly at home with a parent as maincarer, with extended family or attending group childcare provision) will also provide children with very different early relationship experiences.

The childcare context. The present investigation is largely focused on the early patterns of peer play exhibited by children in childcare settings. Childcare is

likely to be of greater influence in the early experiences of this generation than previously in the UK. There are more childcare places available and with state funded places offered for all three and four year olds, the majority of children in England will attend childcare before progressing to formal schooling. Accompanying this rise in the use of childcare are concerns that there may be negative effects on attachment security and subsequent social behaviour (Belsky, 2001). However, many researchers agree that the quality of provision and adult interaction is a key factor in whether this is viewed as a positive or negative influence (Howes & Olenick, 1986; NICHD, 2000; Sylva, Melhuish, Sammons, Siraj-Blatchford & Taggart, 2010).

Crucially, in order to be proactive in supporting children to develop positive interactions and social competence in peer play, adults need to understand the interactions that children demonstrate in their play. Adult interpretation of children's behaviour will vary according to their experience and role either as parent or practitioner in relation to the child. Greater understanding of the pattern of converging judgments between adults with different relative roles is needed. This is particularly important in the current context when 40% of children under three in the UK are attending childcare provision (OECD, 2006). Combining high quality childcare provision and moderate hours of attendance with parents and practitioners working together to support the child is difficult to achieve. But where genuine sharing of parent and practitioner perspectives is present, the real possibility then arises of attendance in childcare becoming a protective factor against both internalising and externalising behaviour problems (Maccoby & Lewis, 2003). To further inform this possibility, exploration is needed of the potential differences in social experiences of boys and girls at this early stage of developing social

competence, taking into account the unique perspective of parents and childcare practitioners.

The moderating role of gender

We have seen above that peer play is a crucial context for the development (and demonstration) of social competence, that temperament and social understanding are likely to play a role in predicting individual differences in peer play, and that these processes are taking place within a complex system of multiple social environments (family, culture, childcare settings). A final consideration that informed the present investigation was the recognition that the peer play context may be experienced differently by boys and girls (Maccoby, 1990). Young preschool children have been found to have different expectations of emotional responses and to judge actions differently according to gender (Blakemore, 2003; Karniol & Aida, 1997; O'Brien, Peyton, Mistry, Hruda, Jacobs, Caldera, Huston & Roy, 2000), as seen in peer responses to girls adopting a more masculine play style (e.g., playing loudly and roughly) or boys engaging in more feminine activities (e.g., skipping). Such value judgments related to the violation of gender norms are likely to be a strong influence on children's early social behaviour. In addition this implies that boys and girls are experiencing the social world in different ways. Both the adults and other children involved in a given context may well have a strong socialising effect (Etaugh & Liss, 1992; Huston, Carpenter, Atwater, & Johnson, 1986; Lindsey, 2001; Serbin, Connor, & Citron, 1981). This includes early differential responses in parenting (Lytton & Romney, 1991), influence of peers in defining gender norms (Langlois & Downs, 1980) and the responses of adults in childcare or during early school attendance (Serbin, et al., 1981; Swiecicka & Russell, 1991; Timmerman &

Schreuder, 2008). Overall, peer play experiences have also been found to differ with boys being involved in larger group activity- focused contexts, while girls are more likely to be found in smaller group, person-focused activities (Golombok & Fivush, 1994).

The present investigation will therefore address the possibility of moderation by gender when examining the factors associated with individual differences in peer play. If gender experiences of early peer play differ consistently then it would follow that the salient factors for successful social functioning may also differ according to gender. For example, the abilities that are valued in pairs or small group relationships may be quite different to those that are valued in larger group interactions. So for girls it may be important to attend to more detailed recognition of intentions, and interpretation of emotional reactions to be successful in the peer group. This is supported by previous research by Banerjee and colleagues which identifies significant differences in the helping response of popular boys and girls towards a victim in hypothetical scenarios. Boys and girls who were categorised as popular through peer nominations offered contrasting responses to the scenario victim. Boys offered instrumental advice which was action related, whilst girls were more likely to offer comfort and emotion related responses (Banerjee, Rieffe, Terwogt, Gerlein & Voutsin, 2006). At present, the evidence regarding children in the preschool years is not sufficiently robust to make very strong predictions about gender differences in the factors that predict individual differences in early peer play. However, Maccoby (1990) makes it clear that same-sex peer interactions already show distinctive qualities in children as young as 2 or 3 years of age. Thus, it seems plausible that gender-differentiated predictors of socially competent peer interactions will emerge

during the preschool period. The present investigation provides an initial exploration of this possibility.

The present investigation

This programme of empirical work will contribute to the existing research literature through the exploration of peer play as a context for gaining insight into young children's developing social competence. This includes a number of strands of research activity. First, the way in which some children are able to engage and sustain playmates in connected conversation and play is examined in depth. Detailed observation of a small number of dyadic and triadic interactions is used to identify core dimensions that characterise particular children's interactions in a play context. The relative engagement in conversation and joint play between partners is explored in order to identify characteristics that facilitate positive connections. Further, we set out to determine the relationship between connectedness in peer interactions and observable indicators of social understanding. The examination of patterns of play and interaction provides the basis for deeper understanding of the dynamic nature of individual differences in the social connections between the children.

In addition, exploration of parent and practitioner views can help us to identify areas of convergence and divergence related to children's socio-behavioural functioning. There has been debate about the relative reliability of parent and practitioner reports of children's behaviour (Field & Greenberg, 1982; Seifer, Sameroff, Dickstein, Schiller, & Hayden, 2004). However, the daily lives of children attending day nurseries are coloured by the shared understanding between their carers, so it is essential to develop our detailed knowledge of convergence and divergence linked to these different perspectives. Recent research findings suggest

that convergence between parents and teachers/practitioners is strongest in relation to externalising problems (Achenbach, 1987; Merydith, 2001) in school and kindergarten, but there is little evidence on this issue for younger samples.

Finally, following on from the approaches to social competence discussed above, the relationships among individual differences in several key variables – temperament, socio-emotional understanding, socio-moral awareness, play patterns, and socio-metric nominations - are considered. Research to date confirms that emotion understanding and theory of mind play significant roles in children's developing social competence (Hughes & Leekam, 2004). However, detailed analysis of these variables in relation to early examples of preschool peer play is lacking, and the role of gender in moderating the associations at particular points in development is, as yet, unclear.

Methodology

In order to build a comprehensive picture of the early stages of children's developing social competence a multi-method, multi-informant approach was adopted which included direct observation, assessment tasks, and sociometric nominations as well as parent and practitioner questionnaires.

First, children's real life experience of peer play interactions was explored through observations of a semi-structured play activity. This enabled exploration of individual differences in interactivity, disconnection and effectiveness in establishing and maintaining engagement with play partners. The direct video taped observation of young children's triadic and dyadic peer play enabled detailed analysis of play characteristics and language forms which were linked to connected and disconnected play. This process was also used to confirm that meaningful individual differences

and group interaction characteristics could be identified in observations of peer play in young preschool children.

Second, parents and practitioners are frequently in a position to be able to observe children's play and peer interactions and so judge overall socio-behavioural adjustment. In this study, therefore, both parents and practitioners were asked to complete the Goodman Strengths and Difficulties Questionnaire (Goodman & Scott, 1997). However, each has a unique perspective which informs the interpretation and judgments of the behaviours observed. Parents' opportunity to see children in a wide range of different contexts, over an extended period of time means they are well placed to report on children's temperamental disposition using the Children's Behaviour Questionnaire (Putnam & Rothbart 2006). Practitioners on the other hand, see children in larger group situations, independently interacting with peers. This gives them a particular perspective on peer play interactions, which they were asked to record using the Penn Interactive Peer Play Scale (Fantuzzo et al., 1995).

Although parent and practitioner questionnaires form a major part of the data collection these were supplemented with more detailed information from assessment tasks. Specifically, whereas the questionnaires related to socio-behavioural functioning, temperament and characteristic peer play patterns, further assessment tasks were used to gain insight into the individual children's current socio-emotional understanding, including theory of mind, emotion understanding and socio-moral reasoning. Theory of mind was assessed using a selection of activities in order to increase reliability. This included the standard unexpected contents and location tasks as well as a "nasty surprise" task. Children were assessed on their ability to demonstrate understanding of their own and other's false belief (Hughes et al., 2000). In addition, emotion understanding was assessed using simple puppet

vignettes requiring children to recognise, name and predict other's emotions in everyday situations (Denham, 1986). Children's perception of the moral aspect of conflict responses was also assessed (Malti et al., 2009). This was accomplished by acting out short scenarios with toy characters; children were asked to say whether the act of one character pushing another out of the way was a good thing to do or not and then to justify their answer.

Two other measures were also included in the empirical work reported here. First, in one study a sociometric assessment based on 'most-liked' peer nominations was used to indicate children's peer group status in their first year in school. Second, the British Picture Vocabulary Scale (Dunn, Dunn, Whetton & Pintillie, 1982) was used in the two final studies to assess and control for receptive language ability when examining the relationship between socio-emotional understanding and peer play.

Research related to young children's developing social competence has traditionally been carried out either at home, school or in a laboratory setting. The increasing use of childcare means it is now important that the day nursery context of children's social development should be considered when designing research on early development (Belsky, 1988, 2002; Belsky, et al., 2007; Howes & Olenick, 1986). This study specifically adds to the current body of knowledge about the social experiences of children attending day nursery provision in the UK. The empirical work was carried out mainly in day nursery provision in a London Local Authority with one additional study completed in a reception class from one of the Local Authority primary schools.

Overview of papers

The five empirical papers in this thesis present research evidence related to the issues discussed above. A brief overview of each paper is provided below.

Paper 1

This paper was designed to ensure a focus on young children's real life experience of peer play interactions, as well as to explore variations in their effectiveness in establishing and maintaining connections in their play. The paper presents detailed observations of dyadic and triadic play interactions in a semi-structured context. Both qualitative and quantitative analyses are used to explore play types and specific aspects of language and their role in the characteristic patterns of interaction. Individual differences in interactive patterns were observed, with some children persistently making successful efforts to establish connection with playmates and others remaining unable or unwilling to do so.

The most complex play type observed was verbal connected play, where playmates exchanged ideas and themes in the context of joint play. In the majority of cases, this was observed in a pretend or role play context. The shared meaning in such imaginative play can be taken as evidence of mutual understanding of each other's thinking during the play session. In order to develop mutual engagement in play themes this study showed that the degree of concordance between play partners' use of mental state language and motivation to participate was important to the social success of the session.

Dyadic and triadic play opportunities are a regular part of children's daily experience in a childcare setting and the study shows the potential for this to be facilitative of social connection and increased understanding. Although the sample is very small the in-depth analysis indicates the importance of children's opportunity to develop play themes independently and the core elements that contribute to the success or failure of the social interactions.

Paper 2

The analysis of observational data from Paper 1 led to a consideration of whether different observers would recognise the same characteristics in children's play. In particular, because our main focus in the present research was on day nurseries, the perceptions of parents and practitioners were of specific relevance. At such an early stage in young children's social development, making sense of social interactions has the potential to be fraught with confusion. The benefits of parents and practitioners having a shared understanding and response to children's social interactions will be a key element of children's developing understanding of social interactions. For this reason we focused on exploring convergence and divergence of parent and practitioner perceptions on adjustment, as well as links between parents' unique insights into children's temperament on the one hand, and practitioners' unique insights into children's peer play on the other.

Success in school has been linked to children's ability to establish effective social relationships and to manage their emotions appropriately in the context of those relationships (Denham, 2006; Ladd, 1990). Paper 2 examines the development of children's characteristic peer play patterns and the factors that relate to these at 2-3 years of age. In particular, temperament and emotion understanding have been proposed to underpin social competence and potentially predict future adjustment. All children in this study regularly attended day nursery childcare provision. As the children were operating in two very different contexts, (i.e., home and childcare setting), it was important to look for a relationship between measures across the two contexts to gain insight into the similarities and differences in adult perspectives on the child. Questionnaire based information was collected from both parents and practitioners related to socio-behavioural functioning. Parents also provided

temperament ratings and practitioners were asked to rate characteristic play patterns. Emotion understanding was assessed in a subsample of children using simple puppet vignettes where children were asked to recognise, name and predict emotional responses.

Results included evidence that parent ratings for the temperament dimension of effortful control predicted practitioner rated interactive peer play patterns. This provides clear evidence of the continuity of children's responses across two distinct contexts where social demands are significantly different. Further understanding was gained through comparing parent and practitioner perspectives on children's socio-behavioural functioning. In this case there was evidence of convergence between adults of prosocial behaviour but divergence in relation to problem behaviours. Finally, emotion understanding was found to be significantly associated with prosocial behaviour and interactive peer play patterns.

Paper 3

The third study was designed to further explore convergence and divergence between parent and practitioner views of children's socio-behavioural functioning and social competence at 3-4 years, in the year immediately preceding entry to school in the UK. By the age of three children have increased their understanding of others and are developing their awareness that others perceive events differently (Brown, Donelan-McCall, Dunn, 1996; Dunn et al., 1991). Their rapidly developing skill in using language accelerates comprehension and understanding of all dimensions of their social world. This facilitates new opportunities for social learning through listening to and observing interactions between others as well as being involved in joint reflection on events. The increased complexity of

understanding and perception of the social context includes making sense of the different rules and values demonstrated at home and in the childcare setting. Family and peer play experience combine with individual difference to increase the range of social competence presented by 3-4 year olds.

Parents and practitioners see children in quite different contexts and are subject to often contrasting influences. To explore this, questionnaires were used to gather information from both parents and practitioners related to children's socio-behavioural functioning. Practitioners were also asked to judge characteristic peer play patterns and parents to judge children's temperament. The pattern of convergence of parent and practitioner views was found to be different to those identified for younger children, with agreement at 3-4 years appearing only for problem behaviours. However, further associations were found between related dimensions of parent and practitioner perspectives which suggests a broader shared understanding of children's social functioning. In particular, parents' judgments of children's temperament (effortful control and negative affect) were found to predict practitioner ratings of characteristic interactive and disconnected play patterns.

Paper 4

At around 4 years old there is a recognised significant change in the complexity of children's thinking and social understanding. This includes perspectives on self and others as well as on the self interacting with others (Wellman & Cross, 2001). Children at this stage begin to make sense of their own and other's motivations and responses to a variety of situations. Both socio-emotional understanding, including key constructs of emotion understanding and theory of mind understanding, and dimensions of temperament are likely to be

instrumental in enabling children to make sense of their relationships. This paper reports on a study examining temperament and social understanding as predictors of peer play patterns.

Findings from this study showed predictive associations between the temperament dimension of effortful control and interactive play patterns, but only for boys. For girls, on the other hand, both theory of mind and the temperament dimension of surgency/extraversion predicted interactive play patterns. Associations between characteristic peer play patterns and emotion understanding scores were only significant for girls, and then only with regard to disruptive play patterns.

Paper 5

The first year at school is still seen as a developmental milestone in a young child's life in the UK. The establishment and maintenance of peer relationships is an important feature of this stage in young children's lives (Crick & Dodge, 1994; Parker & Asher, 1987). As their social understanding expands, they gain further insight into their own and other's thinking in response to a variety of events. Peer play in particular demands a range of complex skills and knowledge including socio-moral understanding, emotion understanding, and theory of mind understanding.

This study set out to explore the way in which socio-emotional understanding is reflected in characteristic peer play patterns and sociometric nominations. These patterns of association were considered with attention to gender as a potential moderator. The results show that emotion understanding predicted peer play patterns, but only for boys. On the other hand, it was only concerning the girls that practitioner ratings of peer play patterns were predictive of most-liked peer nominations. Also for girls, socio-moral explanations predicted most-liked peer

nominations. Although the sample for this study was small there was evidence of divergent patterns of correlates for boys and girls in the development of their social competence.

Paper 1

Patterns of Social Competence in Young Children: Observing Early Peer Play

Abstract

Peer interactions are recognised as playing a key role in the development of children, but we lack detailed observational analyses of individual differences in the early peer play of preschoolers. Our specific focus for this study was to identify core dimensions of early peer play, with particular attention to the key contributors to levels of interactive social connections between children and their peers. This study focuses on detailed observations of peer play interactions among 9 children (42 – 47 months) attending four different day nurseries in a London Local Authority. One pair or triad was observed playing in each setting, and a combination of quantitative and qualitative analyses was used to provide a detailed examination of elements which are likely to play a role in the development of social competence, with particular attention to play types and language use. Each group demonstrated characteristic patterns of interaction, but there were also illuminating differences between individual group members. In groups where there was a high incidence of verbal connected play, the child leading the play demonstrated an ability to understand other's thinking and to use questioning to maintain engagement in the play. In addition, the use of role-play and pretend-play language was a key part of engagement in verbal connected play. Examples of disconnected peer interactions were also evident. Results are discussed in terms of the associations between different play types, forms of language and levels of engagement between the children.

Introduction

Understanding young children's skills in making social connections with their peers is an important step towards supporting those who struggle to succeed socially. Early peer play is a dynamic context in which children can demonstrate the depth and application of their understanding of themselves and each other (Hay, et al., 2004). From a sociocultural perspective Vygotsky (1978) identified the free play context as providing a rich opportunity to explore and demonstrate understanding and to apply skills and knowledge. For example, children's early friendships are considered to be important contexts for using and enhancing "mind-reading" skills which are critical for the understanding of others (Denham, et al., 2001; Dunn, 2004). Indeed, social interaction with siblings and peers is increasingly being implicated in the development of cognition and theory of mind (Banerjee et al., in press; De Rosnay & Hughes, 2006; Perner, Ruffman, & Leekam, 1994).

The present study provides a detailed exploration of core elements in young children's peer play interactions. Our observational work had two major aims. First, we sought to identify the nature of individual differences in early peer play patterns (Fantuzzo, et al., 1995) with a particular focus on interactive/connected versus disconnected play. Second, given that language has a crucial role to play in the understanding of others (Harris, De Rosnay & Pons, 2005; Ruffman, Slade, Rowlandson, Rumsey & Garnham, 2003) we wanted to explore how specific aspects such as conversations, role-play language, and mental-state language shape early peer play.

Observation of early peer play

Observation has always been a fundamental source of information about children's development and various methods of carrying this out in a systematic way have been established (Howes & Matheson, 1992; Parten, 1932; Xu, 2010). Adults observing children at play, over a period of time, are able to identify those most likely to be involved in positive interactions and those who regularly have difficulty engaging in other's play (Pellegrini, 2001). The purpose of initial research utilising early peer play observation was to establish the developmental sequence of social play skills. Through observation, Parten (1932) set out detailed categories of social participation that ranged from being unoccupied to more socially connected engagement. Parten's methodology used 1-minute time sampling schedules during which observers noted the type of play, duration, language and leadership behaviour as well as details of others present in the group and engaged in the activity. Specifically, Parten categorised the social participation of the nursery school children as either: unoccupied, solitary, onlooker, parallel group activity, associative group play, organised supplementary or cooperative group play. The categories of play type were assumed to be hierarchical (i.e., moving from the simple activities of being unoccupied to the more complex cooperative group play). This was based on the fact that younger children were more likely to be observed engaging in the less complex play, such as solitary or parallel play, whereas those who were older tended to establish the more complex associative and cooperative play.

Whilst the elements of play identified as significant by Parten remain important, the suggested hierarchical organisation has been questioned. Changing social experiences of young children, culturally diverse expectations, and varied form and quality of early years provision have all been highlighted as having

changed substantially since the 1930s when Parten's research was published (Xu, 2010). Moreover, although there is recognition that as children mature they are able to engage in more complex play types this is not to say that they would no longer be observed engaged in simpler categories of play. Howes & Matheson's (1992) findings suggest that the sequence of development towards more complex peer play follows a pattern of parallel social, simple social, complementary/reciprocal, cooperative/social/pretend and finally complex/social/pretend. But Howes & Matheson (1992) also assert that different levels of complexity of play can be observed as a particular session progresses, rather than being solely related to a child's developmental stage. This suggests that there are likely to be recognisable characteristic patterns of play that emerge as a result of combining the individual differences in the group members' play competencies. For example, an individual member of the group may possess particular skills, but without a reciprocal response these would not impact on the play demonstrated by the group. It is not surprising, then, that a key element of the more complex play types is the cooperative and collaborative nature of the interactions. Children who are recognised as skilful in their play with others have been shown to be able to share ideas, offer help to playmates and encourage others to join their play. This is in contrast to those who appear disconnected in their play who have been observed hovering outside other's play activities, wandering aimlessly, withdrawing from play activities and being ignored by others (Fantuzzo, et al., 1995). To summarise, each child in a group of playmates will bring individual differences in experience, skill and patterns of play with varying levels of interactivity and disconnection to the group. The combination of these individual differences would create a characteristic pattern of interactions for the group.

Interactive connections in peer play

Our initial question focuses on the need to capture in detail the kinds of individual differences in the levels of interactivity and disconnection exhibited in preschool children's peer play, and the consequences of these for establishing patterns of peer group interaction. The patterns of play noted above are known to develop over time, but are seldom explored in detail to identify the core elements present in each. In Howes and Matheson's (1992) definition of social competence with peers, the ability of a child to achieve his or her own social goals needs to be balanced with flexible and sensitive responses to others (see also Rose-Krasnor, 1997). The beginnings of reciprocal social interactions in play (i.e., the ability to engage in complementary actions) are evident in toddler play (Howes, Rubin, Ross & French, 1988). However, as children mature, their play is likely to include a range of levels of engagement, participation and complexity. In particular, being able to sustain and evolve play themes with the full engagement of play partners would suggest some level of a "meeting of minds" demonstrated by shared understanding of play themes and action (Slomkowski & Dunn, 1996; Aitken & Trevarthen, 1997; Mundy, Block, Delgado, Pomares, Van Hecke, & Parlade, 2007). This increased complexity has been found to occur at around three years of age, and demonstrates the ability to communicate meaning effectively. This intersubjectivity is also most evident in the context of social pretend and more complex role play. The individual differences in the levels of skill and competence that children demonstrate in these complex forms of play are influenced by their previous opportunity to engage in such play and availability of willing play partners. The core elements of such complex play are likely to include skills related to initiating play, joining other's play and

maintaining or changing joint play themes, taking on other's ideas, achieving one's own social goals in how play develops and negotiating strategies that de-escalate and resolve conflict. As Farver (1992) suggests, in the process of play children have to bring together their current knowledge of the world with that of their playmates, so they are learning to accommodate other's perspectives and build shared understanding.

The play context utilised in the present study provided the opportunity to consider the individual differences and group characteristics in detail and the extent to which the resultant play demonstrated interactivity and complexity. The contrasts between different types of play were highlighted in this study by identifying children's observed behavioural responses during the play session. Peer play (i.e., with minimal intervention by adults) allows children to respond to each other and the play opportunities that present themselves at the time. In peer play, the interactive patterns would be likely to include helping others, inviting others to play and sharing ideas. On the other hand, those disconnected from other's play may refuse to join in when invited, present as aimless or need help to engage in play (Fantuzzo et al., 1995). For the purposes of this study, we examined connected play with attention to both non-verbal and verbal features. Non-verbal connected play was demonstrated when the children used similar actions as another child in a contingent way, for example with smiles/gestures being exchanged in the context of a particular play activity. Verbal connected play was coded when the verbal responses accompanying play actions were coherently linked with those of another child.

Factors involved in interactive/connected play

The complementary but specific role of language as peer play complexity increases has been implicated as an indicator of children's developing understanding of their own and other's thinking. Language clearly plays a significant role in the establishment and maintenance of social connection and relationships. It is not clear, however, what role specific aspects of language may play (Ruffman, et al., 2003). For the purposes of this study, language was considered as a means to represent thinking about the play. This broadly divided into factual statements related to the "here and now" and tangible things in the play context (for example, exploring the similarities and differences in the play characters provided) and alternatively pretend play language using the play characters to represent realistic people or objects (for example "This one is going on the swing"; see Dunn et al., 1991; Gottfried, Hickling, Totten, Mkroyan & Reisz, 2003; Nielsen & Dissanayake, 2000). Finally, role play language may also involve using language to speak for a character in the play interaction, with the child either changing his or her voice or using "I" to signify they are taking on the role.

Further, aspects of language that were likely to be instrumental in initiating and maintaining social connection, such as questioning and telling (e.g., "you keep that girl") were included in the coding as simple language forms which children could use to engage each other. These are also elements which are key to developing conversational interactions, which it has been suggested may be significant in children's development of socio-cognitive understanding (De Rosnay & Hughes, 2006). Having initially engaged with each other, sustaining and developing play themes is likely to require different aspects of language. To explore this further the mental state words used by the children in this study were counted and compared.

Mental state words referring to emotion (e.g., scary, afraid), desire (e.g., want, need), perception (e.g., see, look), and cognition (e.g., know, think), were counted. The use of mental state language has particularly been implicated as a precursor to theory of mind understanding (Brown et al., 1996; Lillard & Flavell, 1992; Ruffman, Slade & Crowe, 2002; Ruffman, et al., 2003; Shatz, Wellman, & Silber, 1983) and may be a key component of verbal connected play. It is reasonable to assume that more experience of complex connected play will provide an opportunity for both demonstrating and increasing this kind of mental- state understanding.

In summary, we set out to explore in detail the peer play interactions of young children in either a dyad or a triad context. A small but heterogeneous sample of nine children were videoed in a standardised play situation and the resultant data analysed. This provided an opportunity for in-depth observational work, in order to evaluate differences in core dimensions of peer play, which can provide an important foundation for future research with larger samples. Our focus firstly was to confirm the nature of individual differences in early peer play patterns, with particular attention to forms of connected play. Secondly, we investigated which specific aspects of language, such as conversations, role-play, and mental-state language, might shape early peer play and what elements of the verbal interactions were associated with verbally connected play in early peer interactions. The work was carried out in day nursery settings, which are increasingly being used for childcare provision in the UK (OECD 2006). Importantly, if experience of peer play is supportive of the development of complex play and conversational opportunities the recent increase in use of childcare has the potential to positively impact on young children's social competence via the expanded experience of peer interactions.

Method

Participants

A number of day nurseries in one Local Authority in London, UK, were invited to take part in this observational study, which was linked to a larger programme of data collection reported elsewhere.¹ Parental permission was granted for 6 boys and 3 girls children to take part in a video recorded play activity. Their ages ranged from 42 to 47 months (M 45 months, SD 1.55). The children attended four different day nurseries in one Local Authority in London, UK, with a pair observed playing together in three of the nurseries (Group A with two girls, Group B with two boys, and Group D with one boy and one girl), and a triad observed playing together in the other nursery (Group C with three boys). Since 2004, the quality of the day nurseries in this Local Authority had been categorised on a four-point rating scale (1= high, 4 = low quality) in relation to criteria including Ofsted judgments, observation by the Local Authority Early Years Team, staff training, staff stability, and leadership/management. According to these criteria, Groups A, D and C were from relatively higher quality day nurseries (A and D level 1 rating, C level 2), and Group B was from a lower quality day nursery (level 3 rating). All children had recently (within in one month) completed an assessment of receptive vocabulary using the BPVS (Dunn et al., 1982), and their parents had recently provided demographic information about family background. The children in each group were not particular friends, but did know each other from the normal daily activities at nursery. To ensure anonymity the children's names have been changed.

¹ Note that all of these children also contributed data to Paper 3.

Individual profiles

Group A – high quality day nursery (Level 1)

Claire was 3 years 9 months old (45 months) and her BPVS standard score was 87 at the time of the video play session. She attended the day nursery for 27 hours per week. She lived with both parents and had two younger twin siblings. Claire's ethnicity was reported as White British, parental highest qualification was undergraduate and the current household income was over £50,000.

Alesha was 3 years 8 months (44 months) and her BPVS standard score was 77, at the time of the video session. There was no further information available for Alesha.

Group B – low quality day nursery (Level 3)

Malachi was 3 years 9 months (45 months) and his BPVS standard score was 67, when the video session took place. He attended the day nursery 52 hours per week. He lived with his mother and was an only child. His ethnicity was reported as Black Caribbean and parental highest qualification was AS level. His mother worked and the current household income was between £11,000 - £20,000.

Omar was 4 years 0 months (48 months) and his BPVS standard score was 95, when the video session took place. He attended the day nursery for 16 hours per week. Omar lived with both parents and his ethnicity was reported as Mixed White Asian. Parental highest qualification was reported as AS level with a current household income between £41,000 and £50,000.

Group C – high quality day nursery (Level 2)

Alex was 4 years 0 months (48 months) and his BPVS standard score was 96, at the time of the video session. He attended day nursery for 14 hours per week, and also spent 22 hours per week being cared for by family friends. He lived with both parents and an older sibling. Alex's ethnicity was reported as White British, parental highest qualification was CSE grades 2-4 and the current household income between £41, 000 and £50,000.

Oscar was 3 years 11 months (47 months) and his BPVS standard score was 116, at the time of the video session. He attended day nursery for 7 hours per week, and he also spent 1 hour per week at a preschool. He lived with both parents and a younger sibling. Oscar's ethnicity was reported as White British, parental highest qualification was postgraduate and current household income was over £50,000.

Steven was 3 years 10 months (46 months) when the video session took place; no BPVS score was obtained. He attended day nursery for 24 hours per week, and he lived with both parents and an older sibling. Steven's ethnicity was reported as White British, parental highest qualification was AS level and the household income was between £31,000 - £40,000.

Group D – high quality day nursery (Level 1)

Victor was 3 years 11 months (47 months) and his BPVS standard score was 113, at the time of the video session. He attended day nursery for 34 hours per week and spent 1 hour in a preschool setting. He lived with both parents and was an only child. His ethnicity was reported as White British, parental highest qualification was at undergraduate level and the current household income over £50,000.

Jane was 4 years 1 month (49 months) and her BPVS standard score was 94, at the time of the video session. No further information was available for Jane.

Procedure

All observations took place in a quiet area of the children's usual day nurseries. The children were invited to play together with a standardised selection of Playmobil equipment including nine characters, a swing, climbing bars and a sandpit, all of which were placed on a mat. Nursery staff, familiar to the children, invited the children to play and introduced the activity by demonstrating two of the characters asking each other to play. The practitioners were given instructions to say as little as possible after this introduction and, if intervening, to limit themselves to asking "What is happening now?" or "What might happen next?" The children were free to leave the activity at any point. The play interaction was video-recorded for the entirety of the group play session. The video camera was stationary and placed in front of the play space. The researcher and nursery staff were present in the room for the entire session.

Coding

Play type. Video clips were coded according to play type, based on an extension of Parten's structure for play observation (Parten, 1932). Video clips were divided into 20-second sections, and each section was coded according to the dominant play type shown by each child. Play categories used were: unoccupied (i.e., not engaged in play and not watching other's play), onlooker (i.e., not engaged but watching other's play), solitary play (i.e., playing independently with no link to other's play), parallel play (i.e., engaging in similar actions to another child but not

linking play), non-verbal connected play (i.e., use of similar actions as another child in a contingent way with smiles/gestures being exchanged) or verbal connected play (i.e., linked verbal interaction with another child with contingent verbal exchanges accompanying play actions). For each individual, the percentage of the total number of 20 second sections spent engaged in each play type was calculated. Random sample sections (20%) were coded by an independent judge with a satisfactory level of agreement ($K = 0.75$).

Language. Language coding included simple tallies of utterances, ‘connected’ turns, questions, telling phrases (such as “We’re sleeping here too”), and mental state words, specifically emotion (e.g., cries, scary), perception (e.g., see, hear), cognitive (e.g., know, remembered) and desire (e.g., want, need) words for each group and each individual. Language indicating children’s involvement in factual, role and pretend play was also coded. Role play language was defined as utterances where the child takes on the role of a character and speaks as the character (e.g., “I want to go on the swing!”). Pretend play language was coded when the child used characters as objects, to act out a play scene, but did not take on the roles themselves (e.g., “This one can swing high”). Language was coded as factual where the child merely stated facts about the here and now (e.g., “This one has got black hair”). For each individual child, the percentage of utterances in each of the above larger categories was counted. The total number of ‘connected’ conversations was counted for each group, as was the number of conversations initiated by each individual. Connected conversations were defined as verbal interactions when children’s statements were logically related and continued for two or more turns (Slomkowski & Dunn, 1996). A sample (20 per cent) of utterances were coded (including number of connected conversations, individual turns, real, pretend and

mental state language) by an independent judge, again with a satisfactory level of agreement ($K = 0.72$).

Results

Our first objective was to determine if the observational context would reveal meaningful variations in peer play patterns, particularly with regard to the levels of interactive/connected versus disconnected play. Table 1.1 shows the percentage of 20-second sections related to each play type, by group and by individual. In line with our expectations, there were dramatic differences in the extent to which the children exhibited different play types within their session. These differences were evident between individuals as well as between the groups.

Characteristic play patterns of each group

As shown in Table 1.1, in Group A (high quality provision), the two girls were engaged in highly interactive, verbal connected play for the majority of the session. The session lasted for 31 minutes and 20 seconds, and was the longest session of the entire sample. Both play partners contributed evenly to the play in contrast to the two boys in Group B (low quality provision), who were more disconnected, demonstrating mostly solitary play. Their play session did, however, last for 28 minutes. One of the boys, Malachi, did try to make connections but these were not often reciprocated. Group C (high quality provision) consisted of three boys as play partners. This group had the shortest of the play sessions, lasting for 10 minutes. One of the boys, Alex, was mainly disconnected from the other boys' interactions, spending the majority of the session as an onlooker. Oscar demonstrated the most even spread of the play types of all the children and Steven was most

interactive of the group. He attempted to make several connections with play partners but was only able to engage them briefly. In Group D (high quality provision) Victor and Jane were moderately interactive, and the session lasted for 20 minutes. Victor spent the highest percentage of his time in either solitary or parallel play. He seemed happy to engage with Jane and include her in his play when she wanted to but did not actively seek her involvement; overall, she spent more time watching than Victor. The balance of verbal connected play was very even between Jane and Victor as both children readily responded to each other's verbal approaches. Generally though, Jane was inclined to join Victor's play without conversation or contingent verbal contribution.

The role of language in interactive connections

The language used in the children's individual utterances was coded as role play, pretend, factual, questioning or telling, as shown in Table 1.2. As expected, group and individual differences were evident. Group A's session was dominated by both children using role play language. Both girls took on the role of the characters in their play, sometimes using the toy characters and sometimes extended without the toys. The two girls followed each other's play through two main role play themes, one focusing on getting hurt and going to the doctors, and the other about coming to nursery. Claire provided ideas to initiate the role play and led the development of the themes including extending the play by moving away from the immediate play area. She also used questioning to maintain engagement of her play partner and check out her interest in the direction of play, as in Examples 1, 2 and 3. Alesha tended to follow Claire's lead and used key phrases to re-engage with the play such as variations of "I hurt myself" rather than to introduce new directions of play. She

used fewer questioning and telling utterances and the majority of her language was while she was in role as part of the play. The two play partners were able to understand, follow and contribute to each other's play. They used the play characters to represent different roles, taking on those roles as necessary in the play.

Example 1

Claire: What did you hurt?
 Alesha: My neck
 Claire: Plaster plaster!
 Alesha: Thank you getting better
 Alesha: I hurt myself again
 Claire: On the flowers?
 Alesha: No on here
 Claire: Go on the swing to hurt herself or just?
 Claire: Whee whee I can do dooby dooby do eee eeee I think
 Alesha : I hurt myself !
 Claire : We got to go to the doctors then, where did you hurt yourself?
 Alesha : On my leg
 Claire : This leg and that leg? And what else, what else?
 Alesha : On on on mmmm on my arm too, on my, this arm
 Claire: Right let me hurt myself on the swing

Example 2

Practitioner puts the toy character on the swing for Alesha as she was having difficulty

Alesha: Oh dear, oh dear, oh silly!
 Claire: Yeah, you can have a go now and off she goes to home off she goes she's going to find Mummy
 Mummy wake up! Mummy wake up! And booo!
 Shall we walk up the hill ?
 That's a bit funny hill.
 There's a good sleep a good sleep got to get up. Got to go to for Joshua haven't we ? (*singing*)
 Alesha : You want to go on the slide I want to go out on the field.
 Claire: There okay what shall we do with the lady?
 Alesha: To slide
 Claire : To that one?
 Alesha : Yes
 Claire : Okay
 Alesha : And I'll
 Claire: And off she goes to go home

Alesha : Me had a go on the swing
 Claire: I have to go home mummy you are a a at the nursery. Mummy has gone home and you can't see her, can you darling? Don't cry. Don't cry. Mummy's got to go home and go to work. She'll pick me up. They're coming they're coming, they're coming, they're coming
 Alesha: I can't get out (*toy character stuck in swing*)
 Claire: I...look Mummy's here! There's a Mummy here! (*practitioner fixes swing*)
 Alesha: Thank you
 Claire: That's working now. You got to go home.
 Alesha: Okay
 Claire: Now it is bedtime
 Alesha: It's dark, it's dark. I want to go in and see Mummy
 Claire: Let all the children sleep. All is asleep.
 Claire: This is my end (*of the bench she is lying on*)
 Alesha: This is my end

Example 3

Alesha: I got hurt
 Claire : Whaa I hurt myself, I hurt myself, I hurt myself, I hurt myself
 Where did you hurt yourself ? On my arm. Aw! Is it bleeding ?
 Alesha: Yes
 Claire : Put a plaster on then. Oooh is it better now?
 Alesha: Play with the flowers
Long pause while both girls play with the flowers, swing and sandpit

In Group B, the boys' play was mainly either solitary or parallel. More than half of Malachi's language was in role as he took the part of the toy character. His play focused on the character playing with the swing, sand pit and slide. His play focused on the character playing on the equipment, hurting himself and flying around. Malachi maintained his role play language with the characters and tried to engage Omar in the pretend play by casting him in the role of "Dad". Omar gave a single word response to Malachi's role play question "Can I play Dad?" but did not engage in the play sequence any further. On the few occasions when Omar did join in, the verbal connections were mainly factual as in Examples 4 and 5.

Example 4

Omar: Are you finished?

Malachi: Uh

Omar: I want to play with that

Malachi: I want to go on the slide, I'll go first

Action: Omar plays with figure in the sand pit

Example 5

Omar: You broke it! That's not yours!

Malachi: It's nursery's

Action: The boys both pull the swing and it comes apart.

Omar: You broke it again

Action: Omar slumps and looks grumpy

Action: Malachi tries to fix it,

In Group C, the majority of the language between the boys was factual, as in Examples 6 and 7. Alex spoke very little, and when he did it was a factual utterance or to ask a question. Of Steven's utterances, a third were related to pretend play and just under a third to questioning and telling. He tried on several occasions to engage Oscar in his play but his entreaties only met with success on approximately half of the occasions and then only briefly. The boys focused on putting the toy characters on the climbing bars, swing and sand pit but the play themes were not developed or extended by either of the boys. The majority of Oscar's comments were factual comments about the toy characters and the play equipment.

Example 6

Steven: Look what he's doing Oscar. Look Oscar!

Steven: He's come out

Steven tries to put toy character back on the swing

Steven: It has come off here

Action: Oscar puts figure on swing, Steven helps

Steven: He's come out

Action: Oscar puts toy character on climbing frame

Oscar: He's not holding on to anything on the other side

Steven: He's like this

Example 7

Steven : He's going on the swing

Oscar : No he is!

Steven: He is!

Steven: Oscar!

Action: the swing comes apart Steven gives it to the practitioner to fix

Oscar: That's not right! It has come off here

Action: Practitioner fixes it again

Steven: It is on, he is going on the swing

Action: Oscar puts another toy character on the swing

Steven: Yes it is Oscar! Shall I push him?

Steven: Oscar! I'm in the sand and this is my chair

Oscar carries on pushing the swing

In Group D, Victor and Jane, were balanced with each other in their use of pretend, role play, and factual language. However, Victor used a higher percentage of questioning and telling language forms and tried to include Jane, as in Example 8. In Example 9, Victor is happy to play on his own but also happy to reciprocate when Jane joins in.

Example 8

Victor: Look, look at his arm, he can do it.

Jane: My one can't.

Victor: Maybe you need a lot more help with a teacher.

Example 9

Victor picks up a figure and looks at it closely

Victor: Look this comes away,

Jane: Doo di doo doo (talking quietly)

Victor: Maybe he can stand in there

Jane: Maybe there's loads of girls

Victor: Yeah! let's put them in, that's a rotten lot! That's all the rotten lot

Jane: The people?

Practitioner: Yeah

Victor: Hey where am I?

Victor: Hey I can go on there

Jane: They all have the same hair don't they?

Practitioner: These two have the same hair don't they?

Victor puts the toy characters in a pile

Victor: But look

Jane: They are all the same

Victor: But this one isn't

Victor holds the toy character on the swing

Jane: Yeah but that one isn't

With regard to mental state language, in Group A both girls used relatively high numbers of mental state words (see Table 1.3). In each of the Groups B, C and D, the child making most effort to engage others also used a higher proportion of mental state words than his or her play partners (i.e., Malachi, Steven and Victor). Alesha used the highest total number of mental state words and with her play partner Claire, was engaged in the most connected conversations, as described below.

Connected conversation

The number and the length of connected conversations in which they were involved, as shown in Table 1.4, demonstrate the level of interactivity in the children's play. It is interesting that there was no discernible association between BPVS scores and levels of connected conversation. For example Claire and Alesha had relatively low BPVS scores but engaged in more connected conversations. The interactive nature of the girls' play, in Group A, is evident in the high number of connected conversations (19), with an average of 7 turns per conversation. Their longest conversation consisted of 28 consecutive turns. Claire initiated twice as many of the conversations and used the conversations to develop play themes, as demonstrated in Examples 10 and 11.

Example 10

Claire: I got another friend called Milly

Alesha: I'm a friend

Claire: They're holding hands

Alesha: Do do do (*singing*)

Claire: Holding hands

Claire: "What can we play?" said Milly. I don't know we'll have to go in their home. They're sleeping now they're snoring. That's what Daddy do, snoring.

Example 11

Claire: I found my Mummy

Alesha: I can be the Mummy, I will be the sister

Claire: Where is my Mummy then? This is the Daddy

Alesha: And I'm the sister then

Claire: And where's the Mummy? I found somebody maybe with this top

Alesha: I'm the sister

Claire: Okay! Sister! Mummy's.....gone the slide today

Alesha: I want to play on the swing

Claire: Okay shall I push you?

Alesha: Yes

Alesha: I hurt myself

Claire: Right here we go to the lady

Claire: And what did you do?

Alesha: Going there and going there I hurt myself, I hurt myself

Claire: Let me do it

Alesha: I got hurt

Claire: whaa, I hurt myself, I hurt myself, I hurt myself, I hurt myself

Claire: Where did you hurt yourself?

Claire: On my arm

Claire: Aw! Is it bleeding?

Alesha: Yes

Claire: Put a plaster on then

Claire: Oooh it is better now

The boys in Group C had the next highest number of connected conversations but these were, on average, only half as long (3.36 turns) as that of the girls. Their longest conversations were 5 turns and were between Oscar and Steven. Characteristically, as demonstrated in Examples 12,13, and 14, the conversations did not develop play themes but focused on Steven trying to engage and gain attention from Oscar or for him to respond encouragingly to his utterances, with limited success.

*Example 12**Conversation including Janine a practitioner*

Steven: Janine when we werethere was a circle and
I wanted to go on it and I was very sick .

Janine: Oh that wasn't good

Steven: Oscar would you go on that circle thing that you get sick?

Oscar: No

Steven: That would be very scary won't it

Oscar: Yeah

Example 13

Action: Oscar fixes two figures on the bar and turns them slowly round.

Action: He turns away from the swings and picks up the sandpit

Steven: He wants to go on, he wants to go here

Action: Oscar picks up another figure and holds it in his hands

Oscar: This one wants to go on

Action: Oscar pushes character onto bar

Steven: Sometimes you can hold his hand like this

Steven: Oscar you can go like this can't he

Example 14

Oscar: There's a spider on his top

Steven: Where?

Oscar: Ahh

Steven: Where?

Oscar: Lots here

Steven: Janine look what I'm doing! Oscar let me do it!

The pattern of interactions for the other two groups was very similar in terms of connected conversations. Both groups B and D had a similar number of conversations (6 and 8 respectively) with averages of 4.3 turns per conversation. Only two of the boys' conversations in Group B were concerned with a joint play theme. The discourse was initiated by Malachi with Omar responding in kind but with no further development of the joint play, as demonstrated in Examples 15 and 16 below. There was, however, more equal engagement in conversations that focused

on factual matters such as whose turn it was and toys getting broken, as previously seen in Examples 4 and 5. As with Group B, the children in Group D had their longest connected conversations around factual topics, in this case, comparing the play characters (Example 17). In Example 18, however, there is a brief interaction based in role play.

Example 15

Malachi: Whee whee whee Ow! I bumped my back!
 Omar: dada da dada da
 Malachi: I'm going to go out
 Omar: awhee awhee awhee
 Malachi: Whee ow I bumped my belly
 Omar: I bumped my head again
 Malachi: And I bumped my belly

Example 16

Malachi: Dad, Dad can I go to swings?
 Omar: Yes
 Malachi: Thank you dad Whee whee, that was great Dad whee whee whee
 Action: Malachi pushes figure on swing
 Malachi: That was fun
 Omar: Ow
 Malachi: Let me see
 Malachi: Whee, whee, whee. Ow! I broke my back whee, whee.

Example 17

Jane: They all have the same hair, they have the same hair don't they?
 Practitioner: These two have the same hair don't they?
 Jane: And that one does. That's the same
 Action: Victor puts figures in a pile
 Victor: But look
 Jane: They are all the same
 Victor: But that one isn't
 Action: Victor holds the figure on the swing

*Example 18**(Victor walking toy character along top of climbing bars)*

Victor: I'm up high

Jane: I'm trying to get on it, I'm really little

Victor: Look go on this one then If you push off this one I'll land in the sand pit

Jane: Can you do mine?

Victor: I know how to do all of those. You see look I did it.

Discussion

The ability of young children to establish and sustain interactions in a peer play context is important in enabling them to access opportunities for increasing understanding of themselves and others. However, any general observation of young children's peer play reveals that some children find this easier than others. The purpose of this study was to provide a detailed exploration and identification of the core elements in early peer play. Our findings have confirmed that there are significant variations in levels of interactivity and disconnection, demonstrated in dyadic or triadic interactions. There were also characteristic patterns of interaction shown by each group. The specific elements of language that were considered for this study were found to be closely associated with relative levels of interactivity and disconnection.

Levels of interactive and disconnected play

The more complex play patterns identified by both Parten (1932) and Howes and Matheson (1992) require children to be able to share ideas about the selection of play themes, encourage others to contribute to the shared play and help to maintain the engagement of playmates. Prosocial responses, such as sensitively leading play and suggesting appropriate ideas to develop play, have been shown to be important

in children's development of a possible sociometric status (Fantuzzo, et al., 1995). This success in making social connections has further been implicated in later adjustment and achievement (Fabes, Hanish, & Martin, 2003; Hay, et al., 2004; Howes, et al., 1988; Ladd, 1990). A major focus of young children's play is, it seems, to make connections and explore how relationships work within their peer group. In this study, those who were most successful in forming connections demonstrated an ability to select mutually engaging play themes and to use specific verbal strategies to maintain this engagement to develop the play in response to their own and other's ideas. In fact, at least one child in each group focused his or her communication on engaging others and developing a play theme, albeit with varying degrees of success. A range of communicative strategies were used (Farver, 1992; Gottman, 1983) with questioning and telling, in particular, being used to encourage participation of other play partners. Where they were successful and playmates responded positively there were examples of extended verbal connected play.

Besides the skills of an individual in initiating and establishing social connections, our findings suggest that in order for the play theme to progress, the other child(ren) in the group had to respond in an equally interactive manner. There was evidence in this small sample of significant individual differences in levels of this kind of response. For example, in the same group there were individuals who consistently took no part in the play, made no attempt to engage others, or when approached by others made little positive response. These individual differences inevitably impact on the characteristic engagement in each of the groups. Over time, it seems likely that disconnected play patterns will reduce the likelihood of positive social relationships within the peer group, and this is supported by existing evidence suggesting that disconnected play is associated with isolated, withdrawn behaviour,

peer rejection and poor adjustment to early schooling (Coolahan, Fantuzzo, Mendez, & McDermott, 2000; Fantuzzo, Manz, McDermott, 1998).

Language and conversations

A number of different categories of language utterances – rather than overall verbal ability – were also found to be relevant. First, mental state language is considered to be an indicator of children's understanding of their own and other's thinking (Wellman, 1990; Brown, et al., 1996; Harris, et al., 2005; Lillard & Flavell, 1992). One could then hypothesise that the children who engaged in the most connected conversations would use the most mental state words. For example, the children who used the most mental state words (namely, Claire and Alesha) also engaged in the most connected conversations. Notably, in each group the child who used the most mental state words was the one who made the most attempts to engage others in his or her play. Furthermore, three out of four of these same children also recorded the highest number of "telling" statements and use of questioning in their group.

In this small study, Claire and Alesha in Group A demonstrated the most connected conversations and verbal connected play type and were also the group who used the highest proportion of mental state words. This confirms suggestions from existing work that more mental state language predicts positive social outcomes (Dunn, 1996; Peterson & Siegal, 2002). Although the other groups, particularly Groups B and D, had children using relatively high numbers of mental state words, this did not translate into similar levels of connected conversation. In Groups B, C and D, one child used more mental state words than the others in the group (i.e., Malachi, Steven and Victor) and the dialogue showed that they were trying to engage playmates in the activities. However, our data suggests that for a connected

conversation there needs to be an even match of mental state understanding between the play partners.

It is not entirely clear, however, what role mental state language *per se* has in supporting connections between children in their play, as opposed to the *appropriate use* of mental state language in particular play contexts (cf. Meins et al.'s, 2002, emphasis on 'appropriate' use of mental-state language by mothers). In the present study, the majority of the connected conversations were in the context of role and pretend play. Other language-related skills that that could be important here, helping to complement and embed the use of mental state words, include the ability to signal role and pretend play through language. For example, using different voices, understanding when "I" refers to another character, and the flexibility of thinking which this demonstrates may all be important.

Those who engaged in the most verbal connected play demonstrated an understanding of shared play themes and – as indicated by the relatively higher use of mental-state words – an understanding of each other's thinking in selecting how the play themes could be developed. Evidence of this connectedness was demonstrated by the number and length of connected conversations (Slomkowski & Dunn, 1996). The experiences of shared meaning was most obviously demonstrated in the children's role and pretend play (Farver, 1992; Howes & Matheson, 1992), where the more complex play required children to tune into each other's ideas and accept new directions of play. The observations signified that a role play or pretend play context may be particularly important for facilitating these connections. Indeed, for Groups B, C and D, the average number of turns was less than for Group A and the percentage of factual (i.e., not pretend/role play) utterances was higher. So these play partners were able to sustain factual connected conversations, but these were

shorter and did not develop play themes as effectively as the role and pretend play conversation.

Further, in considering this connectedness, the results from this study are suggestive of a gender influence that may well have impacted on the group interactions (see also Brown, et al., 1996; Dunn, Bretherton, & Munn, 1987). Interestingly, there was a rather stereotypical pattern of engagement in verbal connected play, consistent with previous evidence of gender differences in characteristic play activities (Fagot & Leinbach, 1989; Maccoby, 2002). Specifically, the groups including girls demonstrated the highest percentage of time engaged in verbal connected play and of utterances using role and pretend play language. It is important to note though that Malachi made several attempts to engage Omar in pretend play, as did Victor with Jane, which highlights the importance of the influence of the particular relationship between the individual children. It is accepted that at this stage a significant amount of peer play takes place in same-sex groupings and that characteristics of the play are likely to be related to gender (Fabes, Martin, & Hanish, 2003; Jacklin & Maccoby, 1987). The reality of young children's play experience is that at this stage it takes place in the context of developing awareness of gender. Whilst friendships and peer play are not exclusively same-sex, this is likely to impact on the interactions between individuals and change the characteristics of their joint play. In this study the children were all given the same toys and used them in similar ways. But there was evidence that in the girls' dyadic play connection between the play partners occurred more readily. However, the sample size means that this interaction must be treated with caution and further explored in a larger study which controls for specific relationship/friendship effects.

Limitations and directions for further work

We have noted already that the sample size precludes strong interpretations of the factors responsible for the individual differences observed in the present study. In addition, this study did not explore the possible impact of individual children's temperament in increasing or decreasing the level of interactive or disconnected play, which may have been significant where such a small sample is observed. Moreover, any social interaction is influenced by the context in which it takes place (Ladd, 1990, 1991; Lamb, Hwang, Broberg, & Bookstein, 1988) and the context of the day nursery setting and its quality will, undoubtedly, influence the children's behaviour and responses (Finkelstein, et al., 1978; Belsky, 1988, 2002). These issues deserve further exploration in a larger study.

Beyond those limitations, the present study has provided an opportunity to identify some key areas for future research on early peer play. Firstly, as expected it was possible to identify important variations in play patterns, particularly related to interactive and disconnected responses. It was also possible to observe the direct impact that these differences had on the overall levels of connection in the group play. Further study of these play patterns may inform more effective identification of children at risk of developing patterns of social disconnection. For example, where observations over time indicate that a child is not able to demonstrate more complex play patterns (i.e., verbal connected) in peer play situations, further investigation and intervention could be triggered. Links have been recognised between early demonstration of negative social interactions and later problem behaviours, but not enough is known about the predictive value of different kinds of behaviours evident in very early peer play (e.g., disconnection versus aggressive-disruptive behaviour). Indeed, there continues to be debate, especially concerning young children, about

distinctions between patterns arising from an expected level of developmental (im)maturity on the one hand and genuinely disturbing behaviour patterns on the other (Hughes, Adlam, Happe, Jackson, Taylor, & Caspi, 2000; Ladd, Price & Hart, 1988; Tremblay, 2000; Shantz, 1987).

Secondly, the use of mental state language, conversation in connected play and various communicative strategies to engage and maintain connection with play partners were all found to converge. The interplay of these elements within each group shaped the characteristic pattern of play, whether connected or solitary, imaginative or factual. Connected conversation was particularly indicative of engagement in shared pretend/role play, in this study. The thinking and understanding that underlies role and pretend play is complex. The experience of being connected in play and having a shared understanding of the development of play themes is an intimate and often exclusive experience and role play and pretend play seem to be particularly suited to encouraging this communication of shared meaning. The significance of these types of play in developing social competence in young children is not yet certain, but it is clear that they are important and worthy of further exploration.

Finally, for those sequences of play in which children were able to develop and change play themes, there seemed to be a mutual connection, understanding and ability to coordinate play between the playmates; this was reflected in the lengthy duration of some connected conversations which moved seamlessly from one play theme to another. It would, therefore, seem plausible that the ability to perceive accurately another's emotional response to play suggestions would influence whether a new direction in play did in fact materialise. The ability to "read minds" (Gopnik & Seiver, 2009) and understand another's current emotional state is a recurrent

theme in the literature about developing social understanding. The roles of emotion understanding and theory of mind understanding are vast topics in themselves and clearly individual differences in these areas would be likely to impact on levels of interactivity in early peer play. Our observations regarding the use of mental-state language are consistent with this hypothesis, but the specific predictive value of individual differences in socio-emotional understanding needs to be carefully examined in future research.

Conclusions

This study has confirmed that significant variations in early peer play can be identified through systematic observation. Several core elements of peer play have been explored and found to contribute to the complex play patterns of verbal and non-verbal connected play. Firstly, language related to both role and pretend play was found to be associated with higher levels of interactivity and connected play. Also, using telling statements (e.g., “Let’s pretend this is the corner”) and questioning was effective in engaging others in shared play. Parity in ability to demonstrate mental state understanding between playmates was evident in the group that was engaged in most connected play. In the other groups, although one child in each group made specific and repeated attempts to engage others in play this did not result in connected play. Several additional areas have been identified for future research with a larger sample. The peer play context has proved fruitful to gain insight into the detailed interactions between playmates and individual differences in social connection are worthy of further exploration. More extensive research is needed on the factors related to play characteristics, specifically considering levels of interactivity and disconnection. The findings from this study would suggest that the

relationship between engagement in imaginative play (i.e., role and pretend play) and the ease with which playmates develop connected play is also worthy of further exploration. This raises questions about whether theory of mind and emotion understanding facilitates, or is facilitated by shared participation in role and pretend play, or both. The influence of gender on peer play and on the factors which contribute to social status will also help us understand more clearly the particular skills which would be most useful for boys and girls who struggle to establish positive friendships. Finally, the impact of temperament on early peer play interactions was not considered in this study but would add considerably to our understanding of the salient factors which increase or decrease the likelihood of successful interactions between young children.

Table 1.1

Play type coding: Percentage of 20 second sections in which play type was dominant for each child.

		Percentage of 20 seconds (n=9)								
		Group A		Group B		Group C			Group D	
		Claire	Alesha	Malachi	Omar	Alex	Oscar	Steven	Jane	Victor
Play types	unoccupied	0	1	1	4	0	13	3	1	0
	onlooker	7	1	1	4	90	27	0	11	2
	solitary	4	9	51	54	3	23	33	21	30
	parallel	4	6	20	20	3	10	20	11	30
	non verbal	4	11	5	7	0	17	13	23	5
	connected	80	72	20	12	0	7	27	25	28
	verbal connected									
Total length of play session		31m 20s		28m		10m			20m	

Table 1.2

Language coding: Percentage of individual utterances for each language type.

		Percentage of individual utterances (n=9)								
		Group A		Group B		Group C			Group D	
		Claire	Alesha	Malachi	Omar	Alex	Oscar	Steven	Jane	Victor
Language	Role play	59	68	62	13	0	0	1	8	6
	Pretend	21	13	19	26	9	16	36	25	22
	Reality	19	17	18	61	82	84	64	59	56
	Questioning	29	13	10	6	18	12	22	5	28
	Telling	14	5	2	6	0	0	6	7	16
	Total number of utterances	99	145	93	31	11	25	69	32	73

Table 1.3

Mental state language: Percentage of individual utterances using each category of mental state terms, total percentage of utterances containing mental state words and total number of mental state words uttered by each child.

		Percentage of individual utterances (n=9)								
		Group A		Group B		Group C			Group D	
		Claire	Alesha	Malachi	Omar	Alex	Oscar	Steven	Jane	Victor
Mental State Language	Emotion	6	20	6	3	9	0	1	0	4
	Perception	4	10	5	3	9	0	3	3	12
	Cognition	2	0	0	0	0	4	0	0	10
	Desire	2	8	13	10	0	4	5	6	4
	Total percentage of individual utterances which contained mental state words	18	36	27	16	9	8	16	9	30
	Total number of mental state words uttered	26	36	25	5	1	2	11	3	21
	Mental state words used	Cries, hurt, want, need	Hurt, cry, crying, look, tell, want	Hurt, funny, want, fun, look, see, look	Like, comfort able, want	Touch	Know, wants	Scary, look, want, wanted	Wants, trying, see	Remembered know, why, think, hope, ask, look, see, hear, looking, hurts, afraid, scary

Table 1.4

Connected conversations: Total connected conversations per group, average number of turns per conversation and number of conversations initiated by each child.

		Play Partners (n=9)								
		Group A		Group B		Group C			Group D	
Connected conversation	Group Total	19		6		11			8	
	Average number of turns per connected conversation	7		4.3		3.36			4.38	
		Claire	Alesha	Malachi	Omar	Alex	Oscar	Steven	Jane	Victor
	Initiated conversations	13	6	2	4	2	5	4	4	4

Paper 2

Preschool peer play:

The beginnings of social competence

Published paper:

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Abstract

Background: Successful school experience is influenced by children's ability to manage their emotions and relationships with others. Peer play provides an important learning context for the early development of social competence, but not enough is known about the emergence of peer relationships in the preschool years. Our study explores peer play in 2-3-year-olds, identifying the roles played by temperament and emotion understanding, and examining convergence between parent and practitioner assessments of social behaviour.

Methods: 104 children aged 2-3 years yielded data from three questionnaires: the Goodman (Goodman & Scott, 1999) Strengths and Difficulties questionnaire, rated by parents and practitioners; Putnam & Rothbart's (2006) Child Behaviour Questionnaire measure of temperament, rated by parents; and Fantuzzo et al.'s (1995) Penn Interactive Peer Play Scale, rated by practitioners. A subsample of 28 children completed emotion recognition and prediction tasks adapted from Denham (1986).

Results: Parent ratings of children's temperament – particularly effortful control/self-regulation and surgency/extraversion – predicted practitioner ratings of socio-behavioural and peer play competencies. Also, emotion understanding predicted interactive peer play competencies and prosocial behaviour. There was agreement between parent and practitioner ratings of prosocial behaviour, but there was evidence of divergence in judgments about behaviour problems.

Discussion: The findings show the importance of exploring play situations as a context for understanding the emergence of peer relationships and social competence in the preschool years. They also highlight the links between parental judgments and practitioner perceptions of young children's interactions. Implications for our

understanding and promotion of children's social competence are discussed, with attention to possible impacts on learning.

Introduction

As Belsky (2001) points out, 53% of mothers with children under 5 years, and 49% of those with a child under 1 year, were in employment in the UK in, 1999. The related rise in parents' use of professional childcare, and particularly day nursery provision, means that children are involved in group experience much earlier and for longer. Concerns have been debated about the possible impacts of the intensity and duration of these childcare experiences on children's socio-emotional and cognitive development and future school success (Belsky, 2001; Belsky, Burchinal, McCartney, Vandell, Clarke-Stewart, & Tresch Owen, 2007). Although a clear consensus has not yet been reached on this complex debate, there is no doubt that childcare experiences highlight the significance of very young children's social interaction with peers as well as with adults.

Moving from a dominance of Piagetian influence in early years practice, the Practice Guidance for the Early Years Foundation Stage (DCSF, 2008) is now based on a broader range of theoretical approaches. The role of the practitioner is seen as crucial in using observation and reflection of spontaneous play to inform the development of an environment which "extends and develops children's language and communication in their play" (DCSF, 2008). This has raised the profile in early years provision of social interaction as a context for effective learning. Experiential play opportunities, with the role of the adult seen as scaffolding children's learning, are now characteristic of early years provision in the UK (DCSF, 2008). Crucially, since social competence has been identified as a major indicator of school readiness (August, MacDonald, Realmuto, & Skare, 1996; Coolahan, et al., 2000; Ladd, 1990), it is recognised that childcare

practitioners have a responsibility for scaffolding social as well as other areas of learning. However, in order to do so effectively, we need to understand more about the early emergence of individual differences in children's social competence.

When observing a socially competent toddler one would expect to see attempts to make social connections with others, utilising facial expressions and body language appropriate to the context and the social interactions of others (Slomkowski & Dunn, 1996). Use of language is not always essential, but verbal expressive and receptive abilities clearly facilitate engagement with social partners (Denham, McKinley, Couchoud, & Holt, 1990). Certainly, where language is observed, a socially competent child's expressions will be appropriate to the context and to the responses of others present (e.g., appropriate responses to a child who is hurt, anger at a perceived unfairness). Finally, it is important not to underestimate the complexity of the social-cognitive processes and the learning that needs to take place in the development of these observable behaviours. Socially competent behaviour depends on the accurate interpretation and understanding of other's behaviours, emotional responses, desires, and beliefs (Dunn et al., 1991). The understanding or "reading" of the context will be the most influential in successfully communicating meaning and making connection or "tuning in" with another individual.

Peer play provides an important context for identifying patterns of social competence in young children. Fantuzzo developed the Penn Peer Interactive Play Scale with parents of African American children involved in the Headstart Programme (Fantuzzo et al., 1995). The descriptors and scale were designed to capture the play competencies which are displayed by children who regularly experience positive relationships as opposed to those who do not. Three specific play dimensions were identified: disruptive, disconnected and interactive play. Disruptive play involves

characteristics such as: starts fights and arguments, is rejected by others, and doesn't take turns. The disconnected play dimension includes descriptions such as: hovers outside play group, withdraws, refuses to play when invited etc. Finally, interactive play is characterised as: helps other children, directs other's actions politely, encourages others to join play etc. Research suggests that within the defined population observable behaviours combine to form identifiable dimensions of play interaction (Fantuzzo et al., 1995). Furthermore, these dimensions are related to children's learning behaviours in school: Fantuzzo & McWayne (2002) showed that interactive play predicted greater classroom motivation, task persistence, and both independent work and cooperative learning, whereas disruptive and disconnected play predicted problematic profiles of dysregulated behaviour and disengagement in the classroom.

A wide range of variables, including temperament (Rothbart et al., 2001) and emotion understanding (Denham, Blair, DeMulder, Levitas, Sawyer, Auerbach-Major, & Queenan, 2003; Ensor & Hughes, 2005), have been identified as important to young children's social relationships and motivation to learn (see also Mendez, Fantuzzo, & Cicchetti, 2002). First, temperament has been suggested as central to the nature and development of individual differences in children's social interactions. Rothbart and colleagues (Rothbart et al., 2001; Putnam & Rothbart, 2006) have identified three specific aspects of temperament, namely Effortful Control, Negative Affect, and Surgency/Extraversion. Effortful control is defined by scores relating to low intensity pleasure, inhibitory control, attentional focussing, and perceptual sensitivity (e.g., "Is good at following instructions", "When drawing or colouring in a book, shows strong concentration"). Negative affect is identified by scores of sadness, discomfort, anger/frustration and fear (e.g., "Is difficult to soothe when upset", "Seems to feel depressed when unable to accomplish some task"). Finally, extraversion/surgency is

defined by scores related to impulsivity, high intensity pleasure and activity level, and low shyness (e.g., “Seems always in a big hurry to get from one place another”, “Seems to be at ease with almost any person”). Individual differences in these dimensions can be identified through measuring parents’ knowledge of their child over time and in a range of contexts. We believe there is good evidence that Effortful Control plays a key role in the early emergence of social competencies. It relates to the development of conscience and serves as a protective factor against behaviour problems (Garstein & Rothbart, 2003). More generally, self-regulation has been shown to be a significant influence on peer relationships and a possible predictor of peer acceptance or rejection (Parker-Cohen & Bell, 1988; Szewczyk-Sokolowski, Bost, & Wainwright, 2005.)

Second, the reading of emotional interactions is central to reciprocal relationships, and the lack of development of emotion understanding skills has been shown to predict problem behaviours (Denham, Caverly, Schmidt, Blair, DeMulder, Caal, Hamada, & Mason, 2002). Specifically, Denham’s findings from a longitudinal study following 127 children from age 3 to 4 through their kindergarten year, suggest that for girls, lack of emotion knowledge between 3 and 4 years may serve as an early warning of future social difficulties. For boys, lack of emotion understanding was found to predict angry/aggressive behaviour. Where emotion understanding is strong, it is likely to lead to more competent social behaviour. For example, Slomkowski & Dunn (1996) showed that young children’s emotion understanding predicted more ‘connected communication’ with friends.

Finally, it is important to note that we do not yet have a good understanding of whether the socio-behavioural profile exhibited by children in childcare settings (i.e., as seen by childcare practitioners) converges with the profile perceived by the children’s parents. Evidence of convergence between different informants regarding socio-

behavioural adjustment would provide a strong basis for forming conclusions about the variables that predict positive social learning outcomes. However, existing literature identifies some potential differences between informants with respect to young children (e.g., Seifer, et al., 2004; Stifter, Willoughby, Towe-Goodman & The Family Life Project Key Investigators, 2008). If there is in fact divergence between parent and practitioner perspectives on children's behaviour, then information about this will help early years staff to engage with parents in a sensitive and constructive way when working to support children who may display difficult or challenging behaviour.

The present study

The present study was designed to explore individual differences in the social competence of children at day nurseries, with particular attention to the role of temperament and emotion understanding in peer play. We expected that parent-rated effortful control would be a predictor of positive, interactive peer play (as perceived by the childcare practitioners), and also that children with greater emotion understanding would be more capable of engaging in socially competent peer play. We also examined the patterns of convergence and divergence between parent and practitioner perspectives on social behaviour, including both negative patterns (e.g., disruptive behaviour) and positive patterns (e.g., prosocial behaviour). We expected that there would be some congruence with respect to socially competent behaviour.

Method

Participants

The total sample consisted of 106 boys and 89 girls from 24 preschool settings. The ages ranged from 18 to 49 months for boys (M 30.7, SD 4.9) and from 19 to 46 months for girls (M 30.7, SD 4.2). Forty-three percent of the children were White British, 17% were Black Caribbean, 12% were Black African, and the remaining 28% were from a number of other ethnic backgrounds. Twenty-one percent of the parents who returned questionnaires reported household incomes of over £50000, 16% of parents reported incomes of below £20000, the remainder incomes between these levels.

The children were recruited for the study by inviting all private day nurseries in Croydon, a borough of London, UK, to take part in this research project. The day nurseries were invited to provide information about the children currently attending who were 2 years old (in 2007). Of the 69 day nurseries who were sent information, 24 returned data (34%). The nurseries ranged in size, some with more than 50 registered places and others as few as 3 places (M14 places). Of the 318 possible, 195 practitioner questionnaires (60%) and 106 parental questionnaires (33%) were returned. The analyses below relate to the 104 children with data from both parent and practitioner questionnaires. A subsample of 28 children completed emotion recognition and prediction tasks.

Measures

The Goodman (Goodman & Scott, 1999) Strengths and Difficulties Questionnaire (SDQ) was used for parents and practitioners to indicate their view of the child's socio-behavioural and emotional characteristics. The SDQ includes 25 items

in groups of five, related to dimensions of: emotional symptoms, conduct problems, hyperactivity, peer problems and prosocial behaviour. Each item is measured on a 3-point response scale (0 = not true to 2 = certainly true; scores reversed for 2 items in peer problems, 2 items in hyperactivity and 1 item in conduct problems). For the practitioner form, internal consistency estimates were satisfactory for conduct problems ($\alpha = .74$) and hyperactivity ($\alpha = .75$). Reliability of the prosocial scores was also satisfactory ($\alpha = .76$), after removal of one item (related to 'sharing'). The estimate for emotional symptoms was lower ($\alpha = .60$), and there was a lower level of reliability for the peer problems score ($\alpha = .51$), but item analysis did not suggest that removing any item would improve reliability. For the parent form, there were adequate reliability estimates for the hyperactivity score ($\alpha = .73$), conduct problems ($\alpha = .69$), and prosocial scores ($\alpha = .62$ after removal of the 'sharing' item). Internal consistency for emotional symptoms and peer problems was lower (both α s = .50), but item analysis did not suggest that removing any item would improve reliability. Children received mean scores across the items for each subscale.

Rothbart's (Putnam & Rothbart, 2006) Child Behaviour Questionnaire (short form) was used for the parental view of the child's temperament. The 36 descriptive statements (e.g., Seems to be at ease with almost any person) are rated on a 7 point Likert scale from 1 = extremely untrue to 7 = extremely true. A "not applicable" option was available if the parent had not seen or they judged as not applicable. The items relate to three major factors of surgency/extraversion, effortful control/self regulation and negative affectivity (Rothbart et al., 2001). Internal consistency was satisfactory for all three dimensions ($\alpha = .71$, $.75$, and $.76$, respectively). Children received mean scores across the items for each subscale.

Fantuzzo et al's (1995) Penn Peer Interactive Play Scale (PIPPS) was used for practitioners to indicate the child's patterns of play. The play scale uses a 32-item teacher-report questionnaire to measure 3 dimensions of children's responses in a free play situation. The scores for the core elements of play interaction (e.g., "shares ideas"), disruption (e.g., "destroys other's things"), and disconnection (e.g., "wanders aimlessly") indicate the child's use of social competencies in a peer interaction context with minimal adult influence. Each item is measured on a 4-point response scale (1 = never, to 4 = always). Internal consistency was high for all three dimensions ($\alpha = .85$, $.87$, and $.82$, respectively). Children received mean scores across the items for each subscale.

A subsample of 28 children was available for additional assessments of children's emotion understanding, using photograph and puppet activities based on those established by Denham (1986). Given the very young age of these children, our focus was on gaining simple measurements of children's receptive and expressive emotion vocabulary. First, in our 'receptive-photographs' task, children were presented with 5 pairs of photographs showing different facial expressions and were asked to indicate by pointing which of the two photographs showed a particular emotion ('happy', 'sad', or 'angry'). Children scored one point for each correct answer. Second, in our slightly more complex 'receptive-puppets' task, children were asked over 3 trials to identify the emotions depicted by various puppet faces from a choice of 'happy', 'sad', or 'angry'. This was done by asking questions such as, "Which is happy?", and then asking the children to indicate their choice by selecting the face to be put on the puppet. Children scored 2 points for identifying the correct emotion, and 1 point for selecting a wrong emotion but with the correct valence (i.e., 'sad' instead of 'angry' or 'angry' instead of 'sad'). Finally, in our 'expressive-puppets' task, the children over 3

trials were also shown the puppet faces and asked to respond verbally to “What does he/she feel?”. The answers were scored in the same way as on the ‘receptive-puppets’ task.

Procedure

Practitioners at the participating day nurseries were supplied with both practitioner and parent questionnaires, and were requested to distribute the latter to parents and collect completed questionnaires. Six months later, the subsample of 28 children for whom we had written parental consent to participate in emotion understanding assessments were visited at their nurseries by the first author. The emotion understanding assessments were completed individually in the familiar setting of the day nurseries in one session lasting approximately 15 minutes.

Results

Tables 2.1 and 2.2 provides descriptive statistics and intercorrelations (within informant) for the parent and practitioner questionnaire measures. These show that both parents and practitioners display a robust level of within-informant consistency in their ratings of the children. Below, we examine the relationships among the variables *across* informants in order to evaluate our central research hypotheses.

Temperament and peer play

Table 2.3 shows the correlations between parent-rated temperament and practitioner-rated peer play in the childcare context. As predicted, out of the three factors identified by Rothbart et al., (2001) in assessing temperament (i.e., surgency/extraversion, negative affect, and effortful control), effortful control was found to have a specific association with positive social responses in the free play

context. Specifically, a regression analysis on the PIPPS scores, with parental ratings of effortful control, negative affect, and surgency/extraversion as predictors, showed that only effortful control uniquely predicted practitioner scores for interactive play. That is, children with a temperamental disposition for higher levels of self-regulation appeared to be more likely to play in an interactive, socially competent way with their peers. In addition, the regression analysis on disconnected play showed that children with higher levels of surgency/extraversion were less likely to display disconnected play characteristics such as wandering aimlessly or being confused in play. However, the regression analysis on disruptive play showed no significant associations between this PIPPS play type and the temperament measures. Table 2.4 shows the results of these three regression analyses.²

Emotion understanding and socially competent behaviour

The work with the subsample of children who completed emotion understanding assessments showed that, as predicted, the parent and practitioner ratings of prosocial behaviour and interactive peer play were significantly associated with the children's scores on the emotion understanding tasks. As shown in Table 2.5, the parent and practitioner ratings of prosocial behaviour on the SDQ, as well as the practitioner ratings of interactive peer play, were all significantly correlated with scores on the Receptive-Photograph task, and the Expressive-Puppet scores also correlated with the parent SDQ prosocial score.³

² It should be noted that the correlations between effortful control and interactive play, and between surgency and disconnected play, remained significant after controlling for age ($ps < .05$).

³ It should be noted that all of these correlations remained significant or approached significance after controlling for age (all $ps < .10$)

Convergence between parent and practitioner ratings

Our final aim was to evaluate the degree of convergence in parents' and practitioners' perceptions of the overall socio-behavioural functioning of the young children. In fact, correlations between parent and practitioner ratings on the SDQ showed little direct concordance between parent and practitioner ratings of various behavioural difficulties on the SDQ ($r_s < .15$ for emotional symptoms, conduct problems, hyperactivity, and peer problems). However, as predicted, there was significant convergence between informants with respect to prosocial behaviour ($r(96) = .39, p < .01$).

Discussion

The results of the present study shed light on the emerging social competence of very young children in childcare settings. In line with our hypotheses, both temperament and emotion understanding appear to be associated with more socially competent peer play, and there seems to be good convergence between parents and practitioners especially with regard to such social competence. On the other hand, there was clear divergence between informants with respect to behavioural problems.

First, evidence from this study suggests that the parental view of temperament, as indicated using Rothbart's CBQ (Putnam & Rothbart, 2006) can predict elements of social competence in peer interaction contexts outside the home environment. In particular, we found that parent-rated effortful control predicted greater practitioner-rated interactive play, as predicted, and also that parent-rated extraversion/surgency predicted lower levels of disconnected play. The former finding is consistent with our expectations that effortful control, and self-regulation more generally, plays a key role in social competence (see also Rothbart et al., 2001). This may have significant and

wide-ranging consequences: one review of work on school readiness suggests that “[c]hildren who are temperamentally less distractible ... are rated by their teachers as being more teachable and achieve at higher levels academically” (Blair, 2002, p. 112).

The second finding, that extraversion/surgency predicted less disconnected and withdrawn peer interaction, appears straightforward. However, the management in early years education of children with a temperamental disposition towards high intensity pleasure and sociability is not likely to be simple. Although it was clear that surgency was associated with less social withdrawal, we did not find any correlation of surgency/extraversion with disruptive peer play, suggesting that children with high levels of surgency may or may not exhibit this kind of problematic peer interaction. Potentially, combinations of high surgency with high negative affect or low effortful control could predict negative developmental trajectories. Indeed, Tremblay and colleagues have suggested that there may be a sensitive period for learning to inhibit aggressive behaviour (Tremblay, Japel, Perusse, McDuff, Boivin, Zoccolillo, & Montplaisir, 1999). This has major implications for the importance of both the home learning environment and the environment at early years settings. The potential for the practitioner-parent relationship to be a protective factor for such children needs to be further explored, with a recognition of the significant role played by adults sharing care for young children.

In addition, our data extend the existing literature regarding the role of emotion understanding in socially competent behaviour. Specifically, children who were able to recognise and name emotions were more likely to be perceived by adults as prosocial, and their behaviour during free play situations was also more likely to be judged by practitioners as interactive (e.g., helping, sharing). Previous research has shown that aspects of emotion understanding predict aspects of competent social interaction with

peers (e.g., Ensor & Hughes, 2005; Slomkowski & Dunn, 1996), and our results confirm that these kinds of patterns can be found as early as 2 years of age.

Finally, the observed patterns of convergence and divergence in parent and practitioner observations raise interesting issues. There appeared to be a consensus about prosocial behaviour, building on the link between parent-rated effortful control and practitioner-rated interactive play discussed above. It seems that parents and practitioners, despite seeing the child in very different settings, tend to correspond in their views about socially competent behaviour. However, intriguingly, there was almost no convergence at all in perceptions of problem behaviour. This may be connected to some degree with the relatively weak internal consistency of some of the SDQ subscales in this very young age group – possibly because perceptions of problem behaviours have not yet been consolidated into clear constructs at this age. However, we believe that the divergence may reflect genuine differences in perceived and actual child behaviour across settings. Indeed, Stifter et al., (2008) have also found that there is moderate convergence between parent and independent observers in relation to positivity, but none in relation to negativity.

In our study, the parent ratings could not directly predict externalising difficulties in the preschool setting, raising questions about the social-contextual factors involved in the very early emergence of disruptive play patterns. As pointed out by Seifer et al., (2004), mother's judgments about other children corresponded to independent observer judgments, yet judgments related to their own children did not. It seems possible that biases in informants' global judgments of negative behaviour make it difficult to find agreement about what is a 'problem' across different settings. Our findings seem to suggest that parents and practitioners have very different frames of reference for evaluating problem behaviours. In the context of the relationship between

parents and childcare settings, this highlights the importance of paying greater attention to parents' judgments of their child's attributes. It would also indicate that the method of gaining the parental view is important: it may be that allowing parents to contribute their general knowledge and understanding of children's behaviour, built up over time and across multiple contexts, may be more productive than requiring explicit judgments about negative, 'problem' behaviours. The challenge is to provide a context that promotes role equality in the discussion, with the recognition that parents and practitioners have unique contributions to make to support a child's progress.

Conclusions and limitations

Increasingly, children in the UK are attending a variety of forms of childcare before going to school based provision, and some concerns have been raised about the impact this may have on children's achievement and behaviour when they reach school entry. We believe that understanding the individual differences in social competence emerging from around 2-3 years of age will be crucial for understanding the social relationships that children form in schools later on, particularly as it has already been shown that early social interaction patterns have wider predictive value in terms of associations with classroom adjustment in school (Fantuzzo & McWayne, 2002). Peer play in particular provides a critical learning context for developing social competence. Whereas adults in the main aim to nurture and support young children in their care, the 'horizontal' relationship with peers makes new demands on children's social understanding, requiring children to develop skills in negotiation, compromise, and mutual support. Our results indicate that both temperamental patterns and emotion understanding play a role here, and further illustrate the patterns of convergence and

divergence between parent and practitioner views of children's socio-behavioural functioning. The interplay of home and group social experience influence the child's developing understanding of how the social world works and of the most effective ways to thrive. Thus, we believe that gaining a comprehensive understanding of children's behaviour from multiple perspectives will be crucial for effective scaffolding of children's socio-emotional and cognitive learning.

Our study is limited by a focus on a restricted set of questionnaires and emotion understanding assessments with a relatively small sample of children. Future research would benefit from detailed observations of actual peer interactions, in order to triangulate the results with the parent and practitioner perspectives. Doing so would also enable a clear assessment of how the varying quality of early years day nursery provision could moderate the relationships between temperament, emotion understanding, and social competencies. With regard to the experiential approach evident in current early years provision in the UK, the scaffolding used to support children's social learning is likely to be very different in a high quality setting as opposed to one of lower quality (see Sylva, Sammons, Melhuish, Siraj-Blatchford, Taggart, Smees, Dobson, Jeavons, Morahan, & Sadler, 1999). Finally, we recognise that temperament and emotion understanding are just two of many factors likely to be involved in the emergence of socially competent behaviour during the preschool years. In future research, additional attention to family and community experiences, socioeconomic status, and general cognitive functioning would help to clarify the way in which social experiences, cognitive processes, and temperamental factors all interact with each other in affecting children's developing social competence.

Table 2.1
Descriptive statistics and intercorrelations of parent questionnaires

	Overall socio-behavioural functioning (SDQ) (n=104)					Temperament (CBQ) (n=104)			
	Mean (SD)	Emotional Symptoms	Conduct Problems	Hyperactivity	Peer Problems	Prosocial	Surgency/ Extraversion	Negative Affect	Effortful Control
Emotional Symptoms	.30 (.29)	---	.33**	.35**	.28**	-.05	-.32**	.38**	-.10
Conduct Problems	.57 (.41)		---	.46**	.22*	-.11	.03	.40**	-.16
Hyperactivity	.77 (.46)			---	.22*	-.26**	-.03	.32**	-.27**
Peer Problems	.30 (.30)				---	.20*	-.22*	.24*	-.01
Prosocial	1.60 (.36)					---	.21*	-.18	.35**
Surgency/ Extraversion	4.62 (.72)						---	-.21*	.20*
Negative Affect	3.74 (.91)							---	.06
Effortful Control	5.58 (.67)								---

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2.2
Descriptive statistics and intercorrelations of practitioner questionnaires

	Overall socio-behavioural functioning (SDQ) (n=195)					Peer play (PIPPS) (n=195)			
	Mean (SD)	Emotional Symptoms	Conduct Problems	Hyperactivity	Peer Problems	Prosocial	Interactive	Disruptive	Disconnected
Emotional Symptoms	.36 (.37)	---	.123	.16	.49**	-.01	-.16	.18	.58**
Conduct Problems	.45 (.467)		---	.57**	.30**	-.22*	-.32**	.82**	.27**
Hyperactivity	.91 (.50)			---	.43**	-.39**	-.49**	.66**	.53**
Peer Problems	.46 (.35)				---	-.36**	-.41**	.39**	.65**
Prosocial	1.30 (.46)					---	.66**	-.26**	-.32**
Interactive	2.3 (.50)						---	-.24*	-.41**
Disruptive	1.50 (.46)							---	.38**
Disconnected	1.65 (.52)								---

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2.3
 Parent and practitioner measures correlates

		Overall socio-behavioural adjustment (SDQ) (n= 104)					Peer play PIPPS (n= 104)		
	Practitioner measures	Emotional Symptoms	Conduct Problems	Hyperactivity	Peer Problems	Prosocial	Interactive	Disruptive	Disconnected
Parent measures									
	Emotional Symptoms	.02	-.05	.01	.13	.03	.68***	-.22	-.31***-
	Conduct Problems	-.13	.14	.14	.10	-.02	-.06	.19	-.05
	Hyperactivity	-.17	-.04	.05	.03	-.09	-.03	.03	-.08
	Peer Problems	.04	-.03	-.01	.15	-.16	.01	.00	.07
	Prosocial	.09	-.18	-.22*	-.19	.39***	.32**	-.15	-.07
Temperament									
	Surgency	-.29*	-.05	.04	-.28	-.02	.00	-.06	-.21
	Negative Affect	-.07	-.03	-.05	.14	-.11	.06	.06	-.06
	Effortful Control	-.01	-.10	-.02	-.14	.21	.22*	-.01	-.02

* $p < .05$ ** $p < .01$ *** $p < .001$

Table 2.4
Correlations between parent-rated temperament and practitioner-rated peer play

	Peer Play (n=104)		
	Interactive	Disruptive	Disconnected
Effortful Control	.22*	-.01	-.02
Surgency/Extraversion	.00	-.06	-.21*
Negative Affect	.06	.06	-.06

* $p < .05$

Table 2.5
Regression analyses of practitioner-rated peer play scores, with parent-rated temperament dimensions as predictors

	Peer Play (n=104)					
	Interactive		Disruptive		Disconnected	
Temperament	β	R^2	β	R^2	β	R^2
Effortful Control	.23*	.05	.00	.01	.03	.06
Surgency/Extraversion	-.02		-.05		-.24*	
Negative Affect	.06		.05		-.12	

* $p < .05$

Table 2.6

Correlations between emotion understanding scores, parent and practitioner ratings of prosocial behaviour (SDQ), and practitioner ratings of interactive peer play (PIPPS)

	Parent SDQ Prosocial (n=28)	Practitioner SDQ Prosocial (n=28)	Practitioner PIPPS Interactive (n=28)
Receptive Photo	.56**	.39*	.44*
Receptive Puppet	.31	.40*	.26
Expressive Puppet	.44*	.23	-.00

* $p < .05$ ** $p < .01$

Paper 3

**Parent and practitioner ratings of children's socio-behavioural
competence: Contingency between temperament and
early peer play patterns**

Abstract

Parents and childcare practitioners see children in very different contexts which inform their judgment of individual differences in social functioning. Some research to date has focused on comparing parent and teacher perceptions of school aged children. But little is known of the detailed views of parents and practitioners about children's socio-behavioural functioning at 3-4 years old in a day nursery context. Exploring convergence between adults' judgments about children's overall adjustment at this crucial stage will be helpful to inform intervention for those who find this social context challenging. Practitioner reports were gathered from a sample of 189 children attending day nurseries in a London Local Authority and parental information was gained for 75 children. Questionnaires were used to gather information about temperament, peer play patterns and overall socio-behavioural adjustment. Findings revealed that parent and practitioners' judgments converge only on negative aspects of overall adjustment (i.e., emotional symptoms, hyperactivity and conduct problems). However, parental ratings of temperament were also found to predict practitioners' judgments of overall socio-behavioural adjustment and characteristic peer play patterns. Importantly, some effects of temperament on overall adjustment were also found to be mediated by specific dimensions of peer play. The implications of these findings are discussed and future areas for research identified.

Introduction

With at least 40% of children under three in the UK attending childcare provision (OECD, 2006) it is important that concerns about the impact on children's development are fully explored. Positive early social relationships are recognised as a potential protective factor for future well being and also success at school (Ladd, 2006; Parker & Asher, 1987). However, attending childcare has been implicated in the development of adverse behaviour and poor social adjustment. Conversely childcare attendance has also in some studies been found to predict increased social competence (see Belsky, 2001; Belsky, et al., 2007; Borge, Rutter, Cote, & Tremblay, 2004). There is then a need for further research to clarify more specifically the social experiences that children may have in childcare settings, in order to understand variations in children's emerging social competence.

A number of factors are likely to be influential in children's developing social competence in the childcare context. The interplay between variables such as the child's temperament, supportiveness of relationships with practitioners, quality of the physical and emotional provision, and finally, peer relationships all play important roles in influencing social competence (Sylva, Siraj-Blatchford, Taggart, Sammons, Melhuish, Elliot, & Vasiliki, 2006). The influences of these variables, both individually and collectively, have proved difficult to isolate (Pluess & Belsky, 2010). However, recent preliminary research (Mathieson & Banerjee, 2010) with 2-3 year olds has identified predictive relationships between parent ratings of temperament and practitioner views of both socio-behavioural functioning and characteristic interactive peer play. This highlights two key issues which are addressed in this study. Firstly, focusing on the peer play context provides insight into the real life experiences of young children outside the family context. Secondly,

parents' and practitioners' views of the child's socio-behavioural functioning will inform their shared understanding of the child's current social competence. Finding out more about the way in which these key perspectives on a child inform a shared understanding is important in establishing positive connections between home and childcare which are supportive of the child's social competence. It will also help to identify possible early indicators of future difficulties and inform the development of suitable interventions.

Convergence between parent and practitioner perspectives

Building on Mathieson and Banerjee's (2010) findings, and with a slightly older age group (3-4 year olds), an initial step in disentangling the influences mentioned above is to consider whether there is evidence of a shared understanding of socio-behavioural adjustment by the key adults, both at home and in the childcare setting. This study sets out to gather evidence of parent and practitioner judgments of socio-behavioural functioning to identify patterns of convergence and divergence in the year immediately preceding school entry in the UK. If parents and practitioners agree about a child's characteristic socio-behavioural adjustment they would be more likely to be able to work together to enhance the child's social experience as they approach the transition to school. Evidence of agreement in this study would be confirmed by convergence of parent and practitioner judgments about attributes and social behaviours related to overall socio-behavioural adjustment.

For young children, the contrast between their experiences at home and in childcare settings has the potential to be confusing and stressful (Dettling, Parker, Lane, Sebanc, & Gunnar, 2000). Parents and practitioners clearly have different roles in their relationships with children. Understandably, the general priorities for parents and practitioners when interacting with children have been found to have

characteristic differences (Ahnert & Lamb, 2003). For example, parents are more likely to focus on reducing a child's stress level and supporting emotion regulation, whereas practitioners tend to be more concerned with cognitive stimulation and behavioural regulation. For these different perspectives to contribute positively to children's experience, the interaction between the adults needs to create a shared understanding of children's individual development in their social relationships.

Unfortunately, parent- and teacher-reported observations and judgments of children's responses have typically been found to be divergent, with different informants often showing different perspectives on children's behaviour (Seifer et al., 2004). As children embark on the early stages of their independent social relationships, particularly in the context of increasing attendance in day nurseries, support and understanding from the adults around them can make a significant impact. Where adults are sensitive to the child's understanding of a situation they are able to explain and interpret events, which in turn can help them to scaffold children's own thinking and build understanding of others' perceptions. If parents and practitioners have a shared understanding of the child's strengths and difficulties in their social interactions, the child is more likely to receive coherent supportive messages about his or her own social effectiveness. Alternatively, where parents and practitioners perceive children's social behaviour very differently it is highly likely that children will receive mixed messages which makes it harder for them to make sense of what is needed. An obvious example is where parents may encourage "hitting back" in a conflict situation whereas practitioners are focussing on developing "no hurting" strategies.

Practitioners inevitably have experience of relating to considerably more children than the parents with whom they share a child's care. This is indicative of

the practitioners developing a comparative view of children's social competence. Parent observations on the other hand, are informed by their unique knowledge of their individual child, in different situations and over an extended period of time. In a childcare context the presence of large numbers of children will result in behaviour management approaches which relate more to maintaining order and control than at home (Ahnert & Lamb, 2003). Externalising behaviour characteristics and non-compliant behaviour could therefore be viewed differently in the childcare setting than at home. Generally this is likely to be reflected in practitioners communicating a higher level of concern about certain behaviours than parents. This concern would represent a combination of those related to the individual (e.g., highly active, easily upset) and those related to group compliance (e.g., maintaining a calm environment).

In line with this suggestion of different priorities, Mathieson and Banerjee (2010) showed that at 2-3 years of age, there was little convergence between parent and practitioner judgments on problem behaviours. On the other hand, as children increase in age and independence, problem behaviours can become a significant focus for adult concern and there may be more communication between parents and practitioners about these issues. In fact current guidance for practitioners specifically requires close working with parents and discussion of any emerging difficulties (EYFS, DCSF, 2008, p. 6). In the present study, the focus on 3-4 year olds will allow us to determine if there is still divergence between parent and practitioner perspectives at this age, or if there is evidence of growing convergence between the adults involved with the child in different settings.

Patterns of peer play

One factor that is likely to play a crucial role in practitioners' perspectives on young children's overall socio-behavioural adjustment is their capacity to engage in

positive and interactive peer play in the nursery setting. Children's ability to establish and sustain positive friendships is an important feature of their early peer group experience. Peer play provides a unique situation where children have to apply their current understanding and socio-behavioural knowledge. Importantly, secure social connections and friendships have, in themselves, been identified as possible protection against the challenges and stresses of life (Ladd, 1990). Therefore the social connections demonstrated and observed in their free play are likely to provide insight into a crucial aspect of their current social experience. Over time an individual child's play interactions can be seen to have particular characteristic patterns, such as regularly helping other children, encouraging others to play, or alternatively starting fights and having difficulty sharing toys. The Penn Interactive Peer Play Scale (PIPPS) uses statements that describe observable behaviours related to three characteristic play patterns, namely interactive, disruptive or disconnected play. The scale was devised through observation involving both preschool teachers and parents, to increase the sensitivity and accuracy of the measure of preschool peer play (Fantuzzo, et al., 1995).

Each dimension of the PIPPS identifies typical play behaviours which have been found to be characteristic of play patterns. For example, sharing ideas, leading other children and showing creativity in play activities were found to be characteristic of interactive play. Disconnected play, on the other hand, was indicated by children being ignored by others, being confused in play activities and in need of teacher direction. The third dimension, that of disruptive play, was predictably characterised by children having difficulty sharing or turn taking and being aggressive (Fantuzzo et al., 1995). Children at risk of poor school achievement and reduced social connection have been shown to demonstrate both disconnected and

disruptive play patterns in the early stages of schooling (see Hartup, 1989; Peterson & Siegal, 2002).

Whilst there are particular skills that are recognised as important in developing social competence, it is also crucial to refine the application of these skills in real life relationships. The peer play patterns described above therefore present an important context for the broader socio-behavioural adjustment of children. For children who regularly engage in interactive play, this will provide further opportunity to enhance their already positive experience, for example through, negotiation, conflict resolution and making sense of their own and other's thinking (De Rosnay & Hughes, 2006; Perner, et al., 1994). For those more regularly engaged in either disconnected or disruptive play, on the other hand, such positive opportunities are likely to be reduced or altered, resulting in mainly negative experiences and poor socio-behavioural adjustment.

Establishing and sustaining peer relationships through play provides a dynamic medium for further social learning. An important factor in this process is the influence of temperament which it has been suggested underpins not only children's pattern of responses to situations, but also the responses they receive from others (Caspi, et al., 1995; Kochanska, 1995; Parker-Cohen & Bell, 1988; Thomas & Chess, 1977). Specifically, previous findings indicate that individual differences in emotional reactivity, arousability and self-regulation are associated with future behaviour patterns. Self-regulation, the ability to effortfully control responses, maintain focussed attention and inhibit responses to distracting stimuli enables consideration of the consequences before taking action (Putnam & Rothbart, 2006; Rothbart, et al., 2001). It is not surprising then that high levels of effortful control have been implicated in predicting future prosocial behaviours and social

competence (Fabes, Eisenberg, Jones, Smith, Guthrie, Poulin, Shepard, & Friedman, 1999; Mathieson & Banerjee, 2010; Rubin, Burgess, Dwyer, & Hastings, 2003).

Children who are able to focus their attention, control impulses and regulate emotions are likely to be more able to manage their responses in interactions. On the other hand, for those with low effortful control – particularly where accompanied by high surgency – this may well lead to patterns of interactions with peers which are less than positive and result in difficulties in a peer play context. Thus, of particular interest in this study is the possibility of associations between temperament ratings from parents and practitioner judgments of characteristic interactive, disruptive or disconnected play patterns (Fantuzzo et al., 1995). Where such relationships are found, we can expect them to serve as mechanisms that link temperament with broader perceptions of children's social adjustment. Specifically, adult perceptions of overall positive socio-behavioural adjustment will be informed by children's ability to demonstrate positive, interactive behaviour within the peer play context.

The present study

The first hypothesis for this study was that parent and practitioner scores for socio-behavioural adjustment would converge, particularly for problem behaviours. This was based on the premise that conversations between parents and practitioners as children get older are likely to focus more on problem than prosocial behaviours. This pattern would also reflect a general higher level of concern of adults related to the potential incidence of problem behaviours. In addition, building on previous research, we expected that parent temperament ratings – particularly of effortful control – would be predictive of interactive peer play patterns, as well as of overall socio-behavioural adjustment. Finally, we expected that children's behaviour within the peer play context is likely to be a critical contributor to perceptions of children's

overall adjustment. Hence, peer play was expected to mediate the relationship between parent ratings of temperament and practitioner ratings of socio-behavioural adjustment.

In order to evaluate these predictions three questionnaires were used to gather information from the adults involved with the children at home and in the childcare setting. First, parents' perceptions of children's temperament were gathered using the Children's Behaviour Questionnaire (Putnam & Rothbart, 2006). Second, practitioners' judgments of children's characteristic peer play patterns were collected using the Penn Interactive Peer Play Scale (Fantuzzo et al., 1995). Finally, both parents' and practitioners' views of children's overall social adjustment were rated using the Strengths and Difficulties Questionnaire (Goodman & Scott, 1999).

Method

Participants

All day nurseries in a London Local Authority were invited to take part in this study, of which 29% returned completed questionnaires. The research sample consisted of 189 children whose ages ranged from 32 to 55 months (M 43.4, SD 4.5) recruited from the twenty-three day nurseries who returned questionnaires.

Practitioners returned questionnaire information about 189 children, of whom 95 were boys and 94 girls. Of these, parental information was gained for 75 children (39 boys, 36 girls).

Of the 75 parents who provided completed questionnaires, 69 parents returned information about their current income. Overall, 39% of these parents reported an annual household income of more than £50000, 29% between £30000 and £50000, and 32% below £30000. Seventy-four parents reported their level of academic

qualifications as AS level and above (64%). Seventy-one parents provided information about their ethnic heritage. Across this sample 48% were White British, 17% Black Caribbean, 8% White other, 4% Black African, 6% Indian, 6% White Irish, 1% Mixed White Asian, and 3% indicated their ethnic heritage as other than those offered in the questionnaire.

Measures

Three validated questionnaires were used: the Goodman Strengths and Difficulties Questionnaire (Goodman & Scott, 1999), the Child Behaviour Questionnaire (CBQ very short form: Putnam & Rothbart, 2006) and the Penn Interactive Peer Play Scale (PIPPS: Fantuzzo, et al., 1995). Parents completed the CBQ, practitioners completed the PIPPS, and the SDQ was completed by both parents and practitioners.

The Child Behaviour Questionnaire (very short form) was used to collect parental views of the child's temperament. The 36 descriptive statements were rated on a 7 point Likert scale from 1 = extremely untrue to 7 = extremely true. A "not applicable" option was also included. The items related to the three dimensions of surgency/extraversion, effortful control and negative affectivity (Putnam & Rothbart, 2006). Scores were reversed for 5 items in the surgency dimension and 3 in relation to negative affect. Reliability was modest for surgency ($\alpha = .57$) and satisfactory for negative affect ($\alpha = .75$). The reliability for effortful control was improved after the removal of an item related to being frightened of the dark ($\alpha = .72$).

The Penn Peer Interactive Play Scale (PIPPS) was used for practitioners to indicate the child's usual pattern of play. The play scale used a 32-item teacher-report questionnaire to identify characteristic patterns of interactions in a free play

situation: interactive (e.g., encouraging others to play), disconnected (e.g., hovering outside play group), and disruptive (e.g., destroying others things). Each item was rated on a 4-point scale (1-never, 2-seldom, 3-often, 4-always). The ratings for the core elements of play interaction, disconnection and disruption indicate the child's use of social competencies in a peer play context with minimal adult influence. Internal consistency was high for all three dimensions ($\alpha = .89, .92$, and $.88$, respectively).

The Goodman Strengths and Difficulties Questionnaire (SDQ) was used for parents and practitioners to indicate their view of the child's overall socio-behavioural adjustment. The SDQ includes 25 items arranged in groups of 5, which were related to five factors: emotional symptoms, conduct problems, hyperactivity, peer problems and prosocial behaviour. Each item was measured on a 3-point response scale (0 = not true, 1 = partly true, 2 = certainly true; scores were reversed for 2 items in peer problems, 2 items in hyperactivity and 1 item in conduct problems). For the practitioner form, internal consistency estimates were good for conduct problems ($\alpha = .84$) and hyperactivity ($\alpha = .87$). The reliabilities of the prosocial ($\alpha = .77$) and emotional symptoms ($\alpha = .72$) scores were satisfactory. The estimate for peer problems was somewhat lower ($\alpha = .68$) but item analysis did not suggest that removing any item would improve reliability. For the parent form, there were modest reliability estimates for the conduct problems ($\alpha = .56$) and emotional symptoms score after removing the item for headaches ($\alpha = .58$). The internal consistency for peer problems was improved after removing the item for being liked ($\alpha = .65$). Reliability for the prosocial scores ($\alpha = .69$) and hyperactivity scores ($\alpha = .77$) was satisfactory.

Procedure

Questionnaires for parents (i.e., the CBQ temperament measure and SDQ overall social adjustment) were distributed and collected by the practitioners at each of the day nurseries. Practitioners normally working with the children were asked to complete the PIPPS and SDQ questionnaires.

Results

Preliminary analysis

Table 3.1 shows the descriptive statistics for all measures, and within-informant correlations for parent and practitioner questionnaires are shown in Tables 3.2 and 3.3. There was evidence of within-informant consistency in the significant correlations between the two parental questionnaires, such as the temperament measure of surgency/extraversion correlating positively with the SDQ rating for hyperactivity but negatively with the SDQ emotional symptoms score. Also, the effortful control dimension correlated positively with the SDQ prosocial rating but negatively with the SDQ ratings for conduct problems, hyperactivity and peer problems. There was even greater consistency across all measures for practitioners, with the only SDQ ratings for prosocial behaviour and emotional symptoms not significantly correlated with each other.

Socio-behavioural adjustment (SDQ), temperament (CBQ), and peer play (PIPPS)

The correlations between parent and practitioner measures, (i.e., overall socio-behavioural adjustment (SDQ), temperament (CBQ) and peer play patterns (PIPPS)), are shown in Table 3.4. There was agreement in parent and practitioner ratings of problem behaviours, specifically conduct problems, emotional symptoms and

hyperactivity, using the SDQ measure. Also, parent-rated peer problem scores were significantly, negatively correlated with practitioner SDQ prosocial and PIPPS interactive play ratings. That is, children who are identified by parents as solitary and generally not liked by other children also received low ratings from practitioners for prosocial behaviours such as being helpful or kind and interactive play characteristics such as sharing ideas or encouraging others to play.

The CBQ provides ratings for the temperamental dimensions of effortful control (e.g., ability to attend to a task), negative affect (e.g., difficult to soothe) and surgency/extraversion (e.g., likes rough, rowdy games). As shown in Table 3.4, there were clear indications of connections between parent and practitioner judgments. For example, parental ratings for negative affect, (e.g., tend to get frustrated, easily upset or angry) were correlated with practitioner SDQ scores for peer problems (e.g., those who prefer to play alone, are not generally liked by others). Also, children rated lower by parents in the temperament dimension of effortful control (e.g., not able to attend to a task), were rated higher in hyperactivity (e.g., easily distracted, restless) by practitioners using the SDQ measure.

Regression analyses with practitioner SDQ scores as the dependent variables and parent CBQ dimensions entered as independent variables were completed. The results shown in Table 3.5, confirmed that parental temperament judgments of effortful control negatively predicted practitioner ratings for SDQ hyperactivity and peer problems. In addition, the results also show that effortful control positively predicted practitioner SDQ ratings for prosocial behaviours. Therefore children who were recognised by parents as attentive and able to concentrate were seen by practitioners as more prosocial. Further, parents' ratings of the negative affect

dimension of temperament were found to positively predict practitioners' scores for peer problems (SDQ).

Temperament (CBQ) was also found to predict practitioner ratings of peer play (PIPPS) as shown in Table 3.6. In particular, parental ratings of effortful control (CBQ) positively predicted practitioner scores for interactive play (PIPPS) and parents' negative affect ratings (CBQ) were found to predict disconnected play characteristics (PIPPS).

A final set of regression analyses entering PIPPS ratings at Step1 and CBQ scores at Step 2 with practitioner SDQ scores as dependent variables showed that all three dimensions of peer play served as significant predictors of the SDQ scores: interactive play very strongly predicted prosocial behaviour ratings and negatively predicted hyperactivity; disruptive play negatively predicted both prosocial behaviour and emotional symptoms while positively predicting conduct problems and hyperactivity; and disconnected play positively predicted both emotional symptoms and peer problems. Indeed, the dimension of effortful control no longer predicted practitioner (SDQ) ratings for either hyperactivity or prosocial behaviour after controlling for peer play (see Table 3.7). These results imply that the effect of effortful control on practitioner perceptions of overall socio-behavioural adjustment is mediated by interactive peer play. Indeed, follow-up modelling analysis using 1000 bootstrap samples (see Preacher & Hayes, 2008) showed that these indirect effects of effortful control (after controlling for other temperamental dimensions) on the SDQ scores, via interactive play, approached statistical significance: the standardised estimate for the indirect effect on prosocial scores was .21 ($p = .06$) and the standardised estimate for the indirect effect on hyperactive scores was -.14 ($p = .06$). There was also, however, an independent effect of surgency in negatively

predicting emotional symptoms over and above the highly significant effect of disconnected peer play. Negative affect also continued to predict peer problems over and above the significant effect of disconnected peer play.

Discussion

Firstly, this study set out to explore the pattern of convergence between parent and practitioner judgments related to young children's overall socio-behavioural adjustment. Judgments were found to converge around problem behaviours for children of this age, in contrast to previous evidence with slightly younger children (Mathieson & Banerjee, 2010). Our second hypothesis was that parental ratings of children's temperament would predict practitioner perceptions of individual differences in both peer play patterns and overall socio-behavioural adjustment, and this was also corroborated. Finally, as expected, the practitioner peer play ratings were also found to predict overall socio-behavioural adjustment and this played a role in mediating the effects of temperament on adjustment.

Before turning to a discussion of these specific findings, it is important to situate them within the context of general developmental trends in this age group. There are significant changes which impact on the social experience of 3-4 year-olds, related to their own and other's developing comprehension of the emotional dimension of their world. Between 18 and 36 months typically there will be a considerable increase in the use of language as a means of communicating, thinking and gaining further social understanding (Astington & Jenkins, 1999; Dunn et al., 1991, Harris et al., 2005; Howes, 1985). Between 3 and 5 years there is also a growing awareness that all participants will not perceive shared events in the same way (Bretherton, Fritz, Zahn-Waxler, & Ridgeway, 1986; Dunn et al., 1987). This

learning, when applied to real life situations can facilitate new insights into individual motivations and intentions.

When children attend childcare provision peer play becomes a more significant feature of their real life experience. Children are most reliant on their own social understanding during peer play, where there is minimal intervention from adults. Undoubtedly, children bring a variety of individual differences to their peer play experience such as temperament and socio-behavioural adjustment, as well as previous experience with peers and siblings. In the family context children have the opportunity to learn about social rules, conflict resolution and causes for changes in internal states. Individual differences in understanding are significant at this stage and the characteristics of family interactions have been shown to have a long-term impact. Family talk about emotions and feelings states, for example, have been shown to particularly support socio-emotional learning (Dunn et al., 1991; Dunn, et al., 2001; Dunn & Munn, 1985; Dunn et al., 1994).

Given that the day nursery context provides the opportunity of a large peer group, varying ages and experiences, stimulating play and supportive adults, it has the potential to be a significant protective factor for children's developing socio-behavioural adjustment. In fact, attending childcare provision has the potential to provide children with similar positive social learning opportunities as a large family. Unquestionably, the quality of the provision will determine the likelihood of this socio-behavioural adjustment being supported by sympathetic and encouraging adults (Howes et al., 1988; NICHD, 2001). But the potential of the positive influence of the childcare experience for children's early social competence should not be overlooked.

Perceptions of overall socio-behavioural adjustment

In moving from the social context of the family to the day nursery there is a significant increase in the social demands for children. As previously stated, a key factor in the relative success of this transition from home to childcare is a shared understanding of the child between the adults from both contexts. With younger children of 2 years old parents' and practitioners' judgments were found to be aligned in their views of children's positive prosocial behaviours (Mathieson & Banerjee, 2010). However, in this study with slightly older children, parents' judgments of their children's socio-behavioural adjustment were found to converge with practitioners only in relation to negative dimensions (i.e., emotional symptoms, conduct problems and hyperactivity). This change in convergence may well relate to increased adult anxiety about negative behaviours, resulting in more discussion focused around these externalising behaviours (Hill, Degnan, Calkins, & Keane, 2006). There is a recognition that typically developing children at around 2 years old will present behaviours which relate to communicating their frustration, growing independence and developing use of language (Belsky, et al., 1996; Tremblay et al., 1999). However, by 3 years old it may be that parents are more sensitive to any suggestion that these behaviours are continuing beyond the "terrible twos." For practitioners, who must manage a group of 3 year olds demonstrating individual differences in their ability to self-regulate and engage in positive social connections, there is also likely to be an emphasise on the negative aspects of children's behaviour.

Previous research has illuminated a mixed picture in terms of the convergence of parent and teacher ratings of children's behaviour. Merydith (2001) confirms that parent and teacher ratings have been found to be reliable across a six month test-

retest period for some but not other dimensions of young children's behaviour using the Behavioural Assessment System for Children (BASC). For example, parent judgments in relation to preschoolers internalising difficulties were more reliable and teacher ratings were better predictors of externalising problems. In addition, across context (i.e., home and setting), convergence has previously been found, but only for specific aspects of behaviour. In particular, just as in this study, aggressive behaviour ratings have been found to show a higher degree of convergence than either relational or prosocial behaviours (Kuppens, Grietens, Onghena, & Michiels, 2009).

In reviews of previous studies the use of different measures has been cited as a possible explanation for the variety of results. In this study both parents and practitioners completed the SDQ as a measure of socio-behavioural adjustment and convergence was found on three subscales, specifically emotional symptoms, hyperactivity and conduct problems. Contrary to Merydith's (2001) findings, reliable agreement was found for both internalising and externalising problems. However, the fact that the children in this study were 2 years younger and attended childcare rather than school may have had a bearing on this finding. Since childcare practitioners spend more time with the children and staff-to-child ratios are lower than in school, practitioners may know the children and their families better. They may therefore be more in tune with parental understanding of children's behaviours (see Seifer et al., 2004). If this is the case practitioners may be more able to talk about a wider range of negative/concerning behaviours.

Nonetheless, the relatively lower convergence with respect to prosocial behaviours, especially in comparison with results for younger children, is intriguing. There are several possible explanations. This finding may relate to the increasing complexity of peer interactions and an associated lack of opportunity for parents to

recognise in detail the social competencies involved. Alternatively, for parents whose children are perceived to typically demonstrate prosocial behaviours, perhaps there is a reduction in the preoccupation with peer interactions which was characteristic with younger children. Further, from a practitioner's perspective the prompt to intervene in peer play is most likely to be noticing interactions which involve conflict which will highlight children's negative rather than positive behaviours. Finally, the explanation could lie with the children themselves, given that they are likely to be more motivated to recount negative social interactions which would increase adult awareness of the frequency and importance of problem behaviours (Dunn et al., 1991).

Temperament, peer play and overall socio-behavioural adjustment

In terms of their assessment of a child's temperament, parents are able to draw on responses seen over time and in a variety of situations (Rothbart, 1981). Importantly, parental judgments of temperament in this study were found to predict practitioner ratings of socio-behavioural adjustment. Specifically, the parent rating for effortful control predicted practitioner judgments of externalising behaviours such as hyperactivity and peer problems, as well as prosocial scores. Thus, our findings identify specific predictive associations which highlight the role effortful control plays in children's ability to self-regulate in the context of early real life social interactions. This is in line with previous research which documents associations between effortful control and self-regulation. The consequences of low levels of effortful control were identified as both high impulsivity and negative emotionality, in contrast to the more positive social correlates of high effortful control (Eisenberg, Valiente, Spinrad, Cumberland, Liew, Reiser, Zhou & Losoya 2009; Kochanska, Murray & Harlan, 2000).

In addition, negative affect was found to predict practitioner ratings of peer problems. Children rated higher on negative affect are likely to be seen as more easily frustrated, upset or displaying anger, and this evidently was connected with significantly greater patterns of peer problems. Previous research has shown a link between this tendency to negative affect and social competence in 3 year olds (Belsky, Friedman, & Hsieh, 2001). However, this was judged using the strange situation rather than observation of everyday social experiences and interestingly was not shown to predict problem behaviours. Our findings identify specific predictive associations which highlight the role of temperament in the context of early real life social interactions, extending earlier results by showing that negative affect is a predictor of social behaviour specifically within the context of everyday peer interaction.

These findings show the relevance of parent judgments in predicting behaviours that the child displays outside of the home environment and with different adults. This finding has particular significance for the validity attributed to parental views in the relationship with practitioners. It may indicate that there is potential for more shared understanding between parents and practitioners than might be immediately evident. Perhaps the missing link is that parents and practitioners are recognising and describing the child's attributes in different ways. That is, parents are recognising temperamental attributes whereas practitioners are seeing the behavioural consequences in social interaction; yet their conversations may not connect the two perspectives. In such a context it is likely to be difficult to identify ways to support the child's learning about positive peer interactions. Thus, although the quality of childcare has been highlighted as a significant factor in parent/practitioner partnership, the perceptions and understanding of the adults about

children's socio-behavioural development are also worthy of further exploration (Ostrov, Crick, & Keating, 2005).

The role of individual differences in peer play

Crucially, our data also suggest that peer play is an important context for shaping childcare practitioners' perceptions of children's overall adjustment. As we have argued above, peer play is an important context for gaining insight into young children's social competencies and observation of peer play enables the identification of dramatic variations in patterns of interaction, such as differences in levels of interactive, disconnected and disruptive play. In this study, temperament ratings of effortful control and negative affect were found to predict interactive and disconnected play patterns respectively, suggesting that these aspects of temperament are significantly related to young children's level of engagement with peers.

Kochanska and colleagues detail five functions of effortful control, namely delaying, slowing down motor activity, suppressing or initiating activity in response to a signal, effortful attention and lowering the voice, all of which require selective expression of a subdominant response (Kochanska et al., 2000). These manifestations of effortful control allow children to slow things down, suppress immediate or dominant responses, and select the focus of attention. In the context of peer interactions this would reduce reactivity and facilitate thinking time before making a response. Overall, this could create an effect of calmness that would enable more accurate reading of the emotional and behavioural messages communicated by others. Consequently, responses to others are more likely to be appropriate in tone, rather than hasty reactivity. In fact, effortful control has previously been found to predict empathy and low aggressiveness (Kochanska et al., 2000). To summarise, children scoring high on effortful control may be more effective playmates because

their responses are more temperate and predictable. These children are therefore more likely to be less hasty in their reaction to conflict situations and to engage in prosocial behaviours such as helping others, settling conflicts and sharing ideas, all of which are identified in the PIPPS as interactive play patterns.

High levels of negative affect, on the other hand, have been consistently found to be associated with internalising symptoms. Such children are more likely to display negative emotions such as sadness, frustration or fear in response to new experiences (Crawford, Schrock, and Woodruff-Borden, 2011; Rothbart et al., 1994). In a peer play context children judged to be temperamentally high in negative affect would be more likely, for example, to hover outside or withdraw from play or appear unhappy, as captured by the dimension of disconnected play within the PIPPS questionnaire.

Our results show that these ways in which temperament predicts peer play patterns also have broader significance. The present study showed that peer play patterns were strong predictors of practitioners' overall ratings of socio-behavioural adjustment, so much so that the initially observed associations between effortful control and both hyperactivity and prosocial behaviour are no longer significant after taking peer play into account. Of course, it must be recognised that the mediating role of peer play in explaining effects of temperament on practitioners' ratings of overall socio-behavioural adjustment may partly be explained by shared method variance (since practitioners are rating both peer play and overall socio-behavioural adjustment) and a small degree of overlap in content between the peer play and general adjustment ratings (one of the SDQ items refers to sharing, which is also one of the 'interactive' play indicators in the PIPPS). However, it is clearly the case that perceptions of prosocial and hyperactive behaviour *in general* (as measured by the

SDQ) are intimately connected to perceptions of interactive play *in particular* (as measured by the PIPPS). This underlines the centrality of peer play in practitioners' perceptions of young children's overall adjustment. On the other hand, it must also be recognised that negative affect and disconnected play also had significant independent effects on socio-behavioural adjustment even after considering variance explained by peer play, indicating that negative affect influences practitioner perceptions of adjustment problems independently of the peer play context.

Nonetheless, the fact that the connections between temperament and practitioner ratings of overall socio-behavioural adjustment are at least partly mediated by peer play suggests that this context may be particularly important for effective interventions. This raises the issue of the confidence and skill of the adults in using real life conflict situations as learning opportunities which focus on understanding other's intentions and motivations rather than taking a purely "crowd control" approach. Engaging parents in this problem solving approach would further improve the consistency of support for the child's understanding. However, further research is needed to explore how different adult informants' perceptions of peer play relate to direct observation and children's self-reported experiences; such work would significantly contribute to our understanding of the relationship between temperament and later social and personality development (see Grist & McCord, 2010; Nigg, 2006; Rothbart, 2007).

Also, in future research, it will be important to consider the role of temperament as a multi-faceted protective or risk factor which could inform early approaches to supporting the development of positive social connections. Most likely, it is not just high levels of one dimension of temperament which impact on peer interactions, but the relative combinations of different levels of reactivity and

self-regulation (Eisenberg, Fabes, Karbon, Murphy, Wosinski, Carlo, & Juhnke, 1996). Such individual differences in the interplay between reactivity and self-regulation are further complicated by influences of parental responsiveness and parents' personalities (Kochanska, et al., 2000). Given this complexity, effective intervention programmes will need to be sufficiently flexible to respond appropriately to individual children's needs.

Conclusion

Our hypotheses were largely supported by our findings from this sample population. There was convergence between parent and practitioner judgments related to young children's overall socio-behavioural adjustment, but this was significant only with respect to problem behaviours for children of this age, in contrast to results with younger children. In addition, parental ratings of temperament were found to predict practitioners' of peer play as well as overall socio-behavioural adjustment. Finally, as expected, the practitioners' peer play ratings were found to mediate some of the connections between temperament and overall socio-behavioural adjustment.

A particular limitation of this study is the sample size, especially regarding the number of parents who returned information. The findings therefore need further exploration in a larger study, although the present indications that parental reporting can predict children's responses in contexts outside of the home are clearly important. Further, there was no exploration in this study of theory of mind or socio-emotional understanding, social-cognitive factors which are highly likely to play a significant role in individual differences in young children's developing social competence.

Nonetheless, these findings confirm the validity and value of parental judgments about young children's temperament, which has implications for the development of shared understanding between parents and practitioners. The evidence that parental judgments of temperament significantly predict practitioners' perceptions of children's peer play competencies, and thereby their perceptions of children's socio-behavioural adjustment also has specific implications. The path from the temperamental dimension of effortful control to interactive peer play to lower perceived hyperactivity and higher perceived prosocial behaviour is particularly significant. This kind of evidence suggests that future research is needed to focus on the possibilities of using the peer play context to support children's social learning more effectively, particularly for children who are recognised as being predisposed to dysregulated behaviour and/or negative affect.

Moreover, we know that the quality of relationship between parents and practitioners is very variable and the veracity of parents' views is often questioned (Knopf & Swick, 2007; Reedy & McGrath, 2010). The findings from this study provide some evidence at least that parental contribution to a shared understanding is both unique and significant. This study, therefore, also adds to the literature relating to the need for high quality childcare provision and close working between parents and practitioners to ensure that attendance in childcare can be a protective factor for the development of social competence, rather than a risk factor for problem behaviour (see Campbell, Lamb, & Hwang, 2000; Lamb, 2000; NICHD, 2000).

Table 3.1
Descriptive statistics for all measures

		Possible range	All children	
<i>Parent measures (75 children)</i>			M	(SD)
SDQ	Emotional symptoms	0-2	.26	(.31)
	Conduct problems	0-2	.41	(.32)
	Hyperactivity	0-2	.67	(.44)
	Peer Problems	0-2	.24	(.33)
	Prosocial	0-2	1.71	(.36)
CBQ	Surgency	1-7	4.64	(.57)
	Negative affect	1-7	4.00	(.77)
	Effortful Control	1-7	5.58	(.65)
<i>Practitioner measures (189 children)</i>				
SDQ	Emotional symptoms	0-2	.33	(.38)
	Conduct problems	0-2	.45	(.54)
	Hyperactivity	0-2	.72	(.58)
	Peer Problems	0-2	.36	(.38)
	Prosocial	0-2	1.43	(.48)
PIPPS	Interactive	1-4	2.64	(.57)
	Disruptive	1-4	1.63	(.60)
	Disconnected	1-4	1.62	(.55)

Table 3.2
Intercorrelations of parent questionnaires

	Overall socio-behavioural adjustment (SDQ) (n=75)					Temperament (CBQ) (n=75)		
	Emotional Symptoms	Conduct Problems	Hyperactivity	Peer Problems	Prosocial	Surgency/ Extraversion	Negative Affect	Effortful Control
Emotional Symptoms	---	.15	.18	.27*	-.06	-.43***	.22 ⁺	-.08
Conduct Problems		---	.19	-.03	-.20 ⁺	.16	.23*	-.29**
Hyperactivity			---	.33**	-.32**	.25*	.08	-.38***
Peer Problems				---	-.11	-.03	.18	-.21 ⁺
Prosocial					---	-.13	.04	.48***
Surgency/ Extraversion						---	-.33**	-.18
Negative Affect							---	.25*
Effortful Control								---

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3.3
Intercorrelations of practitioner questionnaires

	Overall socio-behavioural adjustment (SDQ) (n=189)					Peer play (PIPPS) (n=189)		
	Emotional Symptoms	Conduct Problems	Hyperactivity	Peer Problems	Prosocial	Interactive	Disruptive	Disconnected
Emotional Symptoms	---	.19***	.21***	.37****	-.09	-.17*	.14 ⁺	.58****
Conduct Problems		---	.60***	.17**	-.35***	-.28***	.84***	.39***
Hyperactivity			---	.32***	-.54***	-.59***	.62***	.53***
Peer Problems				---	-.33**	-.40***	.23**	.68***
Prosocial					---	.76***	-.33***	-.37***
Interactive						---	-.24**	-.48***
Disruptive							---	.46***
Disconnected								---

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3.4
 Parent and practitioner measures correlates

		Overall socio-behavioural adjustment (SDQ) (n=75)					Peer play PIPPS (n=75)		
	Practitioner measures	Emotional Symptoms	Conduct Problems	Hyperactivity	Peer Problems	Prosocial	Interactive	Disruptive	Disconnected
Parent measures									
	Emotional Symptoms	.32***	-.10	-.19	.06	.08	-.08	-.09	.16
	Conduct Problems	-.01	.26**	.08	.13	.03	-.00	.14	.13
	Hyperactivity	.12	.19	.22*	.07	-.21*	-.18	.24*	.15
	Peer Problems	-.00	-.08	.17	.17	-.30**	-.35***	.10	.14
	Prosocial	-.04	-.12	-.04	-.10	.18	.24*	-.04	-.14
Temperament									
	Surgency	-.19	.14	.18	.03	-.12	-.05	.17	.07
	Negative Affect	.01	-.10	-.07	.28**	-.08	-.12	-.10	.21
	Effortful Control	.08	-.17	-.27**	-.13	.23*	.20	-.16	-.11

* $p < .10$, ** $p < .05$, *** $p < .01$

Table 3.5
Parent-rated temperament dimensions as predictors of practitioner SDQ scores (n=75)

			Emotional symptoms		Conduct problems		Hyperactivity		Peer problems		Prosocial	
			R ²	β	R ²	β	R ²	β	R ²	β	R ²	β
Step 1	CBQ	Effortful control	.04	.07	.04	-.14	.09	-.25*	.15	-.22 ⁺	.09	.26*
		Surgency		-.20		.11		.15		.12		-.14
		Negative Affect		-.08		-.03		.05		.40**		-.20

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3.6
Parent-rated temperament dimensions as predictors of practitioner PIPPS ratings (n=75)

			Interactive		Disruptive		Disconnected	
			R ²	β	R ²	β	R ²	β
Step 1	CBQ	Effortful control	.08	.27*	.05	-.13	.08	-.19
		Surgency		-.05		.14		.11
		Negative Affect		-.23		-.02		.30*

⁺ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 3.7
 Parent-rated temperament dimensions as predictors of practitioner SDQ after controlling for PIPPS (n=75)

		Emotional symptoms		Conduct problems		Hyperactivity		Peer problems		Prosocial	
		R ²	β	R ²	β	R ²	β	R ²	β	R ²	β
Step 1	PIPPS Interactive Disruptive	.27	.14 -.29*	.59	-.12 .75***	.51	-.41*** .40***	.47	-.15 -.10	.68	.83*** -.24**
Step 2	Disconnected		.64***		-.03		.13		.64***		.16 ⁺
	PIPPS Interactive Disruptive	.35	.11 -.29*	.59	-.11 .75***	.55	-.38*** .36***	.53	-.12 -.07	.69	.82*** -.24**
	Disconnected		.71***		-.03		.14		.56***		.20 ⁺
	CBQ Effortful control		.12		-.06		-.16		-.15		.04
	Surgency		-.24*		-.01		.09		.04		-.09
	Negative Affect		-.24 ⁺		.03		.01		.27*		-.11

⁺p < .10, *p < .05, **p < .01, ***p < .001

Paper 4

**Temperament and social understanding as predictors of peer
play: Gender-related patterns of association**

Abstract

The interrelated roles of temperament, emotion understanding, and theory of mind in the development of early peer play are still unclear, but are likely to be crucial to young children's development of successful social interactions. Children aged approximately 4 years were recruited from three day nurseries in a London Local Authority. Practitioners completed peer play and temperament questionnaires for 74 children. A sample of 37 children also completed theory of mind, emotion understanding and receptive vocabulary assessments. Significantly, the temperament dimension of effortful control was found to positively predict interactive play and negatively predict disconnected play, as judged by practitioners. However, the link between effortful control and interactive play was only present for boys. For girls, in contrast, theory of mind and the temperament dimension of surgency/extraversion were shown to be predictive of interactive play as judged by practitioners. This contributes to the evidence that general temperamental dispositions and competencies relating to socio-emotional understanding are associated with interactive play patterns in ways that differ according to gender. The implications for understanding different characteristics of girls' and boys' play and future areas for research are discussed.

Introduction

The early social relationships that children develop with peers, independent of their family and caregivers, provide a testing and complex opportunity to learn about themselves, others, and how interactions work in the real world (Dunn, 2004; Finkelstein et al., 1978; Howes et al., 1988). Whilst there are many variables which have been implicated in individual differences in securing positive mutual connections, (Gottman, 1983; Hanish, Martin, Fabes, & Barcelo, 2008; Hartup, 1989), direct evaluations of the impact of these variables are at an early stage. Key elements which are regularly considered as important in the development of early relationships are temperament, emotion understanding and theory of mind (Hay et al., 2004; Hughes & Ensor, 2007; Rothbart et al., 2001)

Individual differences in peer play

The experience of spending time with groups of peers provides an opportunity for the independent selection of playmates and building unique interactions, whether they are brief or longer term, and whether they lead to positive or negative outcomes (Fabes, Martin & Hanish, 2003). Peer play in a childcare setting is a dynamic context in which connections and relationships can ebb and flow between children over time. A free play situation, with minimal involvement of adults, is both a practice ground and a test of children's social understanding. Moreover, each friendship is different and the tolerances afforded to each friends' responses vary accordingly (Costin & Jones, 1992; Dunn, Cutting, & Fisher, 2002). Children bring to the play situation their current understanding based on their perceptions of how family interactions and relationships work (Fantuzzo & McWayne, 2002). For those who are successful in making and

sustaining connections the virtuous circle connecting more positive experience with more successful interactions is established (Hartup, 1996; Parker & Asher, 1987).

In contrast, those children who experience fewer and less positive peer play interactions will have reduced exposure to positive group influences and opportunities to learn about other's social interpretations (Carpendale & Lewis, 2006; Hamlin & Wynn, 2010). Such children are likely to demonstrate less positively coordinated play and their difficulty in establishing peer relationships may be related to additional risk factors such as negative temperament or low emotion understanding (Bandon, Calkins & Keane, 2010; Fabes et al., 1999; Hughes et al., 2000). The play patterns demonstrated by a child can therefore provide evidence of his or her current facility in integrating a range of social competencies and can indicate risk of social difficulty and possible rejection. Interactive (e.g., able to engage others and maintain interactions) disconnected (e.g., ignored by others, withdrawn), and disruptive (e.g., difficulty in turn taking, aggressive, frustrated) play dimensions have been identified through observation of children's responses in a peer play context (Fantuzzo, et al., 1995). The Penn Interactive Peer Play Scale (PIPPS) offers a means to identify key behaviours that characterising each of the three dimensions. In particular, the items of the interactive play dimension identify behaviours which are indicative of social competence, and as such are likely to be predictive of positive outcomes (Fantuzzo, et al., 1995; Ross & Rogers, 1990).

The role of temperament in peer play.

Temperament may be seen as a relatively stable set of dimensions relating to basic individual differences in reactivity and self-regulation (Rothbart, et al., 2001). An individual's temperament involves emotionality (positive and negative) as well as a

characteristic balance of activity and restraint. Thus, temperament will influence children's reactions to situations and in particular their approach to others. At the age of 4 years, children in the present study will have developed relatively consistent ways of reacting to family interactions and expectations. However, these patterns of responses will be particularly challenged in the less tolerant context of peer play. There will, in fact, be a range of new social demands created by the numbers of both children and adults with whom interactions are necessary in the childcare setting.

One purpose of this study was to extend the data available related to practitioner perspectives of children's temperament and the ways in which this is linked to their views of children's behaviour in free play situations. In particular, the temperament dimension of effortful control has been highlighted as significant in the development of social development (Kochanska et al., 2000). This ability to self-regulate through overriding a dominant response in favour of a sub-dominant one underpins appropriate adaptation to the variety of social contexts in which we operate. Although early signs of effortful control have been found to emerge at around 12 months it continues to develop in early childhood before becoming a stable personality trait (Rothbart et al., 1994).

During this period of development, we expect levels of effortful control to play a key role in shaping early peer play patterns. Specifically, effortful control becomes increasingly influential from the second year of life, facilitating attentional focus and helping children to override dominant but inappropriate or undesirable reactions (Kochanska, et al., 2000; Posner & Rothbart, 2000; Rothbart, et al., 2001). In social interactions such abilities enable children to cope with intense emotions and inhibit reactions such as aggression, resulting in more positive peer interactions (Mathieson & Banerjee, 2010; Rothbart et al., 2001; Tremblay et al., 1999). In addition, effortful control has been found to be connected with academic competence (Blair & Razza,

2007; Blair, Granger, Kivlighan, Mills-Koonce, Willoughby, Greenberg, Hibel, Fortunato, & Family Life Project Investigators, 2008). Thus the benefits of effortful control are recognised as regulating emotional responses and following rules that are related to later school success in being able to attend and persevere in learning tasks.

High activity levels and social approach, which fall within the dimension labelled surgency by Rothbart (2001), could potentially lead to a perception of greater social competence (see Parker-Cohen & Bell, 1988). However, elevated activity levels have also been associated with poor social outcomes, particularly externalising behaviours, and difficulties in adjusting to school (Tremblay et al., 1999). Thus, the role of surgency in influencing social outcomes in children is far from clear. Finally, the third dimension of temperament identified by Rothbart (2001), which encompasses the characteristics of fearfulness, sadness and difficulty to soothe, has been labelled negative affect. This dimension has been associated with both internalising and externalising behaviour problems (Berdan et al., 2008; Crawford, et al., 2011).

Given these indications in previous literature of influences on behavioural adjustment it is important to gain further insight into the relationship between temperament and social competence (Parker-Cohen & Bell, 1988). In this study we aim to further explore the role of temperament particularly in the context of peer play, with the expectation that effortful control will positively predict interactive play, and that negative affect will predict disconnected and/or disruptive play.

It should be noted that gender differences have been demonstrated in the extent to which effortful control is perceived in young children's behaviour, with girls generally receiving higher ratings (Kochanska et al., 2000). These higher ratings for effortful control in girls have also been associated with high ratings for social competence. On the other hand, for boys effortful control has been found to have a more

specific role in moderating the association between same-sex play and social competence. Specifically, a positive link between same-sex peer play and social competence is evident only among boys with high levels of effortful control (Fabes et al., 2003). Boys' play is characterised by more active, competitive and forceful behaviour than that of girls, providing greater opportunity for exuberant and dysregulated play (Maccoby & Jacklin, 1987). As a consequence, in terms of adult perceptions of social competence, effortful control may have particular significance for boys (Fabes et al., 2003).

Emotion understanding as a predictor of peer play.

Making sense of emotions, how they are displayed, experienced and changed, is a complex process. It is, however, essential in making successful relationships and understanding ourselves (Denham, et al., 2003; Eisenberg, McCreath, & Ahn, 1988). Specific elements of emotional competence that have been identified as important are knowledge, expressiveness and regulation of emotions. Emotion knowledge, that is, being able to recognise, name and describe feelings, is fundamental to understanding and interpreting both our own and other's actions and reactions (Denham et al., 2003). The general manner and extent to which we express our emotions are mainly influenced by the display rules and norms demonstrated in our close family and immediate society culture (Ereky-Stevens, 2009; Ladd, 1991; Matsumoto, Yoo, Hirayama, & Petrova, 2005). For children attending childcare provision they are subject to an additional micro-culture in which children have a role independent of their parents. Further, at this early stage children are gradually gaining confidence in their ability to regulate and manage their own emotions (Blair et al., 2004, Denham et al., 2001). In the peer play context, where there is less adult involvement children have to independently make

sense of their own and other's emotional displays. The ability to recognise and understand other's emotions can be expected to facilitate socially appropriate responses which in turn will sustain connections in interactive play (Denham et al., 2003).

The influence of theory of mind on peer play

Theory of mind, which implies the ability to distinguish between our own thinking, the reality of the world, and what others might think about it, is commonly conceptualised as a key developmental milestone. The ability to understand another's intentions and beliefs, and to realise that they will act on his or her own representation of reality, even when they are ill informed or patently wrong, is a complex process. However, beginning to understand why people do what they do, and to engage in similar learning about oneself is an integral part of social competence (Dunn, et al., 1991). Although children who have been identified as socially competent have been found to have a more developed theory of mind understanding (Lalonde & Chandler 1995; Slaughter, et al., 2002), the association has not always been evident (Badenes, Estevan, & Bacete, 2000). This lack of consistency in research findings related to the role of theory of mind understanding in social competence suggests that further exploration is necessary. As suggested by Banerjee and colleagues (in press) individual differences in social understanding are likely to be associated with variations in relationships but as yet the evidence of the relative importance of specific aspects of mental understanding is unclear. To contribute to this debate in this study we aim to explore whether there is a positive association between theory of mind understanding and practitioner judgments of young children's interactive peer play patterns.

The key development in a child's 'theory of mind' is commonly observed to take place between 3 and 5 years of age, and is often recognised by the ability to pass a

false-belief task (Wellman et al., 2001). This task provides the opportunity to demonstrate the understanding that an individual will act on a current belief even if it is known by others to be incorrect. There is currently a debate about the relative merits of a narrower, representationally dependent definition of theory of mind, indicated by the passing of the false belief task, and a broader view incorporating intentionality and wider mental state understanding (Hughes & Leekam, 2004). At the centre of the debate is the recognition that whilst not able to demonstrate success in the false-belief task, children younger than 2 years old are able to demonstrate their understanding of other's intentions and motivations (D'Entremont & Seamans, 2007; Repacholi & Gopnik, 1997; Tomasello, et al., 2005). This understanding is used to inform their reactions to others such as in simple peek-a-boo games, or avoiding someone who has previously hurt them. In this study, rather than relying on a single false belief task, the theory of mind assessment is based on a battery of tasks which has been shown to be a more reliable gauge of children's current theory of mind understanding (Hughes, et al., 2000).

The present study

We explored the practitioners' judgments about temperament and play patterns (i.e., interactive, disruptive or disconnected) in relation to assessments of emotion understanding and theory of mind. Together these perspectives give further insight into salient factors involved in social success in the context of peer play, among children aged 4 years. In addition exploring in more detail the practitioners' judgments of young children's social competence helps to increase our understanding of how their behaviour can be perceived in a day nursery context.

Our first hypothesis for this study was that children who demonstrated theory of mind understanding would be perceived as more prosocial by practitioners. Secondly, children demonstrating higher levels of emotion understanding were expected to be rated as more interactive by practitioners. Thirdly, we suggested that temperament, particularly the effortful control dimension, would play an important part in adult judgments of peer interactivity.

Finally, we considered the possibility that there could be different patterns of associations between measures related to gender (Garner, Robertson, and Smith, 1997; Maccoby 1990; Weinraub, Clemens, Sockloff, Ethridge, Gracely, and Myers, 1984). As noted earlier, effortful control is likely to be particularly important for boys; the context of boys' same-sex play, because of its more active and physical character, requires high levels of effortful control both to sustain the play but also to inform positive adult perceptions (Fabes et al., 2003). Thus, we predicted that the temperament dimension of effortful control would also be more important in practitioner perceptions of boys' peer play than that of girls. By bringing together information about each of these elements, which potentially contribute to social competence, and combining the use of different measures it is hoped that further insight will be gained into their importance for young children.

Method

Participants

Day nurseries in London that had contributed to the previous studies reported in this thesis were invited to take part in the current study. The children in the sample were recruited from the three day nurseries that had previously returned the most

questionnaires. The ages of the children in the sample ranged from 35 to 59 months (M48.7, SD 5.6; Girls M49.5 SD 5.9; Boys M48.2 SD 5.3). Practitioners returned questionnaire information about 74 children, of whom 41 were boys and 33 girls. Of these 74, assessments of social understanding were carried out with 37 children (22 boys, 15 girls) for whom parental permission was gained. Ethnic heritage was mixed including representation from White British (60%), Black Caribbean (14%), Black African (10%) and Mixed White Asian (5%). The range of household income was reported by 27% of parents. Most parents (17%) reported incomes of £30,000-£50,000 while the remaining 10% recorded incomes of between £5000 - £30000. The Local Authority provided information regarding their criteria based judgments of the quality of the nursery provision. These judgments were based on Ofsted inspections, staff training/qualification and regular observation visits from the Local Authority Early Years Team. This information indicated that 64% of the children attended high quality day nurseries.

Measures

Two validated questionnaires were used to collect information from practitioners: the Child Behaviour Questionnaire (Putnam & Rothbart, 2006) and the Penn Interactive Peer Play Scale (Fantuzzo, et al., 1995).

Temperament. The Child Behaviour Questionnaire (short form) was used to collect practitioner views of the child's temperament. Rothbart defines temperament as individual differences in reactivity and self regulation (Rothbart, 1981). The 36 descriptive statements are rated on a 7 point Likert scale from 1 = extremely untrue to 7 = extremely true. A "not applicable" option is also included. The items relate to three major factors of surgency/extraversion (e.g., is full of energy even in the evening, likes rough and rowdy games), effortful control (e.g., sometimes becomes absorbed in a

picture book and looks at it for a long time), and negative affectivity (e.g., is difficult to soothe when upset or sad or seems to feel depressed when unable to do something) (Rothbart, et al., 2001). Internal consistency was acceptable for all dimensions (negative affect $\alpha = .69$, surgency $\alpha = .82$, effortful control $\alpha = .77$).

Peer play. The Penn Interactive Peer Play Scale (PIPPS; Fantuzzo, et al., 1995) was used for practitioners to indicate the child's typical patterns of play. The play scale uses a 32-item teacher-report questionnaire to measure 3 dimensions of children's responses in a free play situation. The scores for the core elements of play interaction (e.g., encourages others to join play or directs other's action politely), disruption (e.g., verbally offends others or starts fights and arguments), and disconnection (e.g., hovers outside other children's play activity or wanders aimlessly) indicate the child's use of social competencies in a play context with minimal adult influence. Internal consistency was high for all three dimensions ($\alpha = .88, .90$, and $.87$, respectively).

Assessment Tasks. Children, for whom parental permission could be secured, were invited to take part in a set of assessment tasks. A total of 37 children completed the British Picture Vocabulary Scale (BPVS; Dunn et al., 1982), Emotion Understanding photograph and puppet assessment (Denham, 1986) and a battery of theory of mind tasks (Hughes, et al., 2000). The BPVS was administered to give an indication of each child's receptive vocabulary, with the raw score being used for analysis (Dunn, et al., 1982). The order in which the tasks were presented was: emotion understanding photo receptive task, theory of mind unexpected contents and unexpected location task, emotion understanding puppet assessment, theory of mind nasty surprise and finally the BPVS.

Emotion Understanding. The maximum score available for the emotion understanding assessment (Denham, 1986) was 57 points. The assessment firstly involved children identifying positive and negative facial expressions ('happy' or 'sad') from 5 paired sets of photographs of the same children. There was a possible maximum score of 5 for this task. Secondly, their comprehension of receptive and expressive emotion language was assessed by identification and labelling of the appropriate facial expression and emotion (happy, sad or angry) using puppets. The maximum score available was 12, 6 for receptive and 6 for expressive appropriate responses. Specifically, two points were given if the emotion was correctly identified or labelled and one point was given if the emotion description was incorrect but the valence was appropriate. Thirdly, simple scenarios were played out with the puppets and children asked to suggest how the puppets might feel. For example, where two puppets are at the park and one buys the other an ice cream, the children were asked to say how the puppet receiving the ice cream might feel. They were able to indicate verbally or by pointing to the appropriate face for the puppet. Six scenarios were based on generally predictable emotions with a maximum score of 12 points (again, two points for the right emotion, one point for the right valence but wrong emotion). In fourteen other scenarios, the puppet gave a response to the situation that indicated the opposite emotion to the child's likely response as reported by either parent or practitioner. For example, in a scenario where the puppet is going to nursery, if a parent had reported the child is happy to go to nursery the puppet would display a sad response. A maximum of 28 points could be scored for correctly predicting the emotions for the stories in this section.

Theory of mind. Research by Hughes et al (2000) suggests that reliability of theory of mind assessments is increased where several of the recognised tasks are used.

Informed by these findings, the unexpected contents, unexpected location and nasty surprise activities were used. The unexpected contents task comprised a prototypical sweet container (Smartie tube) containing small building bricks. Children were asked, before holding or seeing inside the tube, what they thought was inside. Once they had been shown the building bricks inside, they were asked firstly to name what was in the box and secondly what they had thought was in the box before they had seen the contents. As a control, the children were then asked what was really in the box. Next children were asked what another person (represented by a puppet) would think was in the box. Finally, a further control question about what was really in the box was asked. To pass the assessment the children were required to correctly identify their own false-belief before looking inside the box, predict the puppet false-belief response and answer the two control questions (reality and memory).

The unexpected location task involved two small Lego boxes with lids, one yellow and one blue, two Playmobil characters and a suitably sized football. The children were introduced to the characters, Joshua and Samuel, and it was explained they had been playing football. The following sequence was then demonstrated using the characters and props: Joshua puts the football in the blue box and goes to see his Mum, Samuel takes the football from the blue box and puts it in the yellow box and goes to his bedroom, Joshua comes back to get the football. The children are asked where Joshua would look for the football and if necessary are prompted by the question “In the yellow or blue box?” The children were finally asked where the football was really and where it was to start with as control questions. The children were considered to have passed the assessment if they correctly answered that Joshua would look in the blue box and the two control questions.

Finally, the belief-desire reasoning “nasty surprise” task was used, again acted out with puppets. The gender of one puppet was matched to the child and the puppet of the opposite gender instigated the nasty surprise. The story was told with the puppets, a small milk bottle and a prototypical juice bottle as props. The children were told, with appropriate emotional responses from the puppet (milk – oh yuck! Errgh horrible!, juice – mmm, yum, lovely) that the puppet’s favourite drink was juice and that they really did not like milk. They were asked how the puppet would feel if they were given the bottle of juice and then a bottle of milk. It was explained that the other puppet decided to play a trick. The following was then acted out: the other puppet takes the bottle of juice, empties out the contents and fills it with milk, hides the milk bottle then goes out to play, the first puppet returns really thirsty from playing outside. The children were told that the puppet could see the juice bottle on the table but could not see what was inside it. They were asked how the puppet would feel, happy or not happy. They were then asked to justify their answer and say what the puppet thought was in the bottle. As a control question children were asked what was really in the bottle. Finally, they were asked how the puppet would feel after a drink and again to justify their answer. To pass the false-belief question (i.e., what did the puppet think was in the bottle), the children also had to pass the reality control question. To pass the emotion test question (i.e., how did the puppet feel when he/she saw the juice bottle), they also had to pass the reality control question (i.e., what was in the bottle really), and all of the emotion contingency questions (i.e., how did the puppet feel).

An aggregated score for theory of mind (maximum available, 5 points) was calculated comprising the points from each of the following questions: unexpected contents task (i.e., own false belief and other’s false belief), unexpected location task

(i.e., attributed false belief), and belief – desire reasoning task (i.e., emotion test and false belief perception).

Procedure

After parental permission was gained the practitioners, who normally worked with the children, were asked to complete questionnaires. They completed the Child Behaviour Questionnaire (Putnam & Rothbart, 2006) and the Penn Interactive Peer Play Scale (Fantuzzo, et al., 1995). The first author (blind to practitioner ratings) conducted the emotion understanding, theory of mind, and BPVS assessment tasks in a quiet area in the nurseries, with practitioners nearby. The children were free to leave at any time.

Results

Table 4.1 shows the descriptive statistics for each of the questionnaire and assessment task measures, for the sample as a whole, and in relation to gender. An independent t-test indicated that four of the measures provided scores that had significant gender-related differences. These were language ability (BPVS), practitioner judgments of interactive play PIPPS interactive, and temperament (CBQ surgency and effortful control). Girls were found to score significantly higher on BPVS, PIPPS interactive, and CBQ effortful control. Boys' scores for CBQ surgency were significantly higher than those for girls.

Table 4.2 shows the correlations between scores separately for each gender. For all children there was a positive correlation between the receptive language scores and

demonstrated success on the theory of mind assessments. Children with higher language ability were therefore also those who demonstrated greater false-belief understanding and belief-desire reasoning. For boys, the receptive language scores did not correlate with any other measure used in this study. For girls, the BPVS scores also correlated positively with the Emotion Understanding scores. So, girls with higher levels of receptive language understanding were also those who were able to recognise, name and predict emotions. Because of these associations, BPVS was included as a control variable in all subsequent regression analyses.

Interactive play patterns

Preliminary analysis showed clear differences in the patterns of associations temperament, social understanding, and interactive peer play for boys versus girls. A regression analysis was conducted on the interactive peer play scores, entering BPVS receptive language at step 1 followed by temperament, theory of mind and emotion understanding measures at step 2. This was completed once for the whole sample, and then again for each gender separately. Table 4.3 shows that the temperament dimension of effortful control was positively predictive of interactive play characteristics, but only for boys. In contrast for girls, the temperament measure for extraversion/surgency were found to be positively predictive of interactive play characteristics. Further, for girls only, theory of mind scores positively predicted interactive play patterns. Explicit tests of moderation by gender, incorporating interactions between gender and the predictor variables, showed significant interactions between gender and surgency ($p = .019$) and between gender and effortful control ($p = .029$). However, the role of gender in moderating the effect of theory of mind was not significant ($p > .10$).

Disconnected play patterns

The correlations in Table 4.2 also show that children rated higher on disconnected play (i.e., withdrawing from, or not invited to join others play) were also those who demonstrate difficulty in sustaining concentration and following instructions (i.e., low rating for effortful control). A regression analysis entering BPVS at step 1 and CBQ, theory of mind and emotion understanding at step 2 was completed. The results for the whole sample, and for each gender separately are shown in Table 4.3. The regression analysis showed that for the sample as a whole, effortful control negatively predicted disconnected play. Also, for boys only, disconnected play patterns were negatively predicted by the temperamental rating for extraversion/surgency. That is, boys who were judged to have difficulty in joining other's play were less likely to be those who were full of energy, rushed into things or like rowdy games. In contrast, there were no significant predictors of girls' disconnected play. However, explicit tests of the gender by surgency interaction showed no significant moderation effect ($p > .10$).

Disruptive play patterns

For both boys and girls, disruptive play patterns were associated positively with both extraversion/surgency and negative affect dimensions of the temperament measure (Table 4.2). For girls only, there was also a surprising, positive correlation between disruptive play patterns and Emotion Understanding. Therefore, girls who were typically demonstrating poor sharing, aggressive and argumentative behaviours were also those better able to name, recognise and predict the emotions of others. However, the regression analysis showed no predictive associations between either the temperament or social understanding measures and the PIPPS ratings for disruptive play (all $ps > .10$).

Discussion

These findings indicate consistent relationships between temperament and play patterns but also gender-related differences in patterns of associations between variables. Effortful control was found to be predictive of the PIPPS interactive play and negatively predictive of disconnected play. However, there were different patterns of associations between the variables for boys and girls. The positive predictive effect of effortful control on interactive play was significant for boys only, as was the negative effect of surgency on disconnected play patterns. For girls only, both the extraversion/surgency temperament dimension and the theory of mind aggregate predicted levels of interactive play. Finally, for girls only, there was tentative evidence of a positive correlation between disruptive play characteristics and Emotion Understanding scores.

These results only partially support our hypotheses. As expected, temperament ratings did predict interactive peer play, but – consistent with indications from previous research – the important dimension was effortful control for boys whereas it was surgency/extraversion for girls. On the other hand, surgency negatively predicted disconnected play only among the boys. We had also expected that emotion understanding and theory of mind would be predictive of more interactive play. The results indicated that theory of mind was indeed a positive predictor, but only for girls. Moreover, levels of emotion understanding were *positively* correlated with disruptive behaviour in girls, although this effect did not emerge as significant in the regression analysis after including other predictors.

Temperament

Temperament is considered to be a relatively stable construct from around the age of 3 years in early childhood (Rothbart et al., 2001). It includes individual differences in both levels of reactivity and the ability to reduce and increase levels of intensity of emotions (Cole, Martin, & Dennis, 2004). Successful peer interactions require the ability to moderate our own emotional reactions appropriately within each particular context or relationship. Thus, one focus of this study was to explore practitioner perspectives on temperament – particularly aspects relating to self-regulation – and to consider how these judgments related to their perceptions of children's characteristic play patterns.

Our results showed that ratings for the temperamental dimension of effortful control positively predicted interactive play scores, and negatively predicted disconnected play scores. Previously, Kochanska and colleagues (2000) have explored possible links between effortful control and social-emotional outcomes. Their findings support the view that children rated higher on effortful control measures were slower to display anger and showed less intense anger, although this was similarly the case for expressions of joy. In terms of the impact on interactive peer play, it may be that their peers see these children as more predictable and measured in their social and emotional responses. Therefore such children may be easier to be with and consequently more likely to be selected as a play partner. Practitioner perceptions are likely to be influenced by the extent to which children can regulate their emotions specifically concerning anger or frustration and particularly in larger group situations. It has also previously been suggested that practitioners may perceive the behaviour of children with low effortful control as deliberately negative (Myers & Morris, 2009). This

combination of factors highlights the importance of effortful control in facilitating children's ability to manage the increased complexity of social interactions in a group context. Thus our findings support the view that the ability to effortfully inhibit one response in favour of a less dominant one or to moderate the expression of an intense emotion is important in influencing practitioner perspectives of children's participation in interactions within the peer context.

However, further analysis of our data suggested that the salience of specific dimensions of temperament may also differ according to gender for children of this age. The effect described above, whereby effortful control positively predicted practitioner ratings of interactive play, was found to be significant only for the boys. This is in line with previous observations by Fabes and colleagues (2003), who found that exposure to same-sex play contexts is positively connected to social competence only among boys with high levels of effortful control. During childhood, where same-sex play is the norm, the more active and competitive nature of boys' play (Maccoby & Jacklin, 1987) may mean that effortful control will be a particularly important foundation for facilitating the social competencies captured in our measures of interactive play (e.g., sharing, helping etc.). In contrast, boys who are lower in their effortful control abilities may display over-aroused, dysregulated social interactions and problem behaviours, because they are unable to develop – and put into practice – these interactive competencies (Farver, 1996). At the same time, boys with low levels of surgency are more likely to exhibit disconnected play, because they are not able to participate in the more physically active play typical of boys' peer group interactions. In other words, boys who are judged by practitioners to be disconnected in their peer play are likely to be those who are less active and less willing to be involved in rough and rowdy games.

Interestingly, a different effect of surgency was found for girls, since higher surgency ratings actually predicted more interactive play scores. This pattern is most likely to be identifying girls who are confident enough to make approaches to others and initiate play interactions, which would constitute a positive outcome (Parker-Cohen & Bell, 1988). What is not clear, however, is what factors determine when surgency can lead to disruptive play, either for boys or girls. It was noteworthy that surgency was positively correlated with disruptive play in both boys and girls, although this effect was no longer significant after other predictors were included in regression analysis. Potentially, links with disruptive behaviour could be exacerbated when high surgency is combined with other, more problematic elements (e.g., high negative affect and/or low socio-emotional understanding). Also, peer acceptance may act as a moderating factor, with sensitivity to peer feedback driving changes to individual behavioural responses and prompting self-regulation of over-active and impulsive behaviours (Dunn et al., 1991). The restricted measures and sample size in this study preclude analysis of such complex interactions, but this is clearly an area that merits further research.

Socio-emotional understanding

At 4 years of age, it is generally accepted that children are in the process of developing their understanding of their own and other's thinking to a level that enables them to be able to predict and interpret other's responses as well as justify their own (Dunn & Hughes, 1998). The battery of theory of mind assessments (Hughes et al., 2000) gave an indication of the child's ability to recognise their own false belief and other's false belief, and to give a justification of their views of another's emotional response. The emotion understanding assessment yielded scores for recognising,

labeling, and predicting emotions. Our expectation was that these aspects of socio-emotional understanding would be positively associated with interactive play.

However, we found only tentative evidence for a link between theory of mind and interactive play among girls. In addition, a positive correlation was found between emotion understanding and disruptive play patterns. A possible explanation may relate to girls' characteristically more intimate and small group peer interactions (Maccoby & Jacklin, 1987). Consequently the girls in this sample may be using both their emotion understanding and theory of mind knowledge – in different ways – to influence social interactions and enhance their own peer status. For example, inclusion or exclusion from friendship groups or activities may be a way of communicating acceptance or rejection of individuals. Thus, the socio-emotional understanding of girls could be used both to forge positive connections with others, as well as to engage in the precursors of negative, relational aggression towards others, which been found to be more common in girls' than boys' peer interactions (Crick & Grotpeter, 1995).

Our findings suggested that although boys had similar levels of theory of mind understanding as the girls, this did not predict the practitioner judgments of their levels of interactive play. One simple explanation for this would be that practitioners are valuing interactive qualities in boys' play (e.g., quieter, less boisterous activities), which are not reflecting times when boys are demonstrating their advances in mental-state understanding. Alternatively, it may be that at this stage in boys' relationships, theory of mind understanding – at least as expressed in the standard laboratory tasks used here – simply does not underpin their connections with peers in their play. It has been shown that early peer play is mainly characterised by same sex grouping (LaFemiere, Strayer & Gauthier, 1984) and that this is likely to influence social connections and play patterns (Fabes, et al., 2003). The engagement of boys in activities involving

cooperation and competition in large groups, rather than small-group or dyadic relationships (Maccoby, 1990), means that the effect of theory of mind understanding may appear very different from the ‘interactive’ qualities measured in the present study. The boys’ larger group play provides more opportunity for conflict, negotiation and the establishment of hierarchies (Fabes, et al., 2003), and practitioners’ ratings of interactive play may not adequately capture this manifestation of theory of mind understanding as readily as in the girls’ smaller group activities.

Conclusions, limitations and future directions for research

A major task for children in their early years is to establish positive and reciprocal connections with peers. In this process they also have opportunity to develop ever deeper understanding of themselves (Volling, et al., 1997). Their positive connections with peers and understanding of self will be reflected in their peer play. From the evidence of this study the salient factors that relate to children being perceived as succeeding in sustaining positive peer relationships are different for boys and girls. In particular, for boys effortful control – reflecting the capacity to self-regulate – was important, but for girls at this age, theory of mind understanding and surgency/extraversion were associated with higher practitioner ratings for interactive peer play.

A future larger study with a focus on using direct observation to substantiate practitioner judgments of play patterns would be useful to overcome the influence of existing child-practitioner relationships. Also, given that gender-specific patterns of predictive relationships were found between variables, further exploration of boys’ and girls’ early peer play would be helpful. Indeed, finding out more about gender-related

variations in experiences of social connections, through peer nominations and further assessments of socio-emotional understanding, may be illuminating.

In sum, this study provides evidence that there are early differences in the factors involved in boys' and girls' emerging peer play patterns. While further research is needed, these preliminary indications clearly have implications for supporting practitioners' understanding of the different social demands and opportunities afforded by girls' and boys' peer play. Moreover, Fabes et al. (2003) have shown that same-sex play patterns also relate to early academic competence (again with effortful control as a moderator, with gender-specific patterns), suggesting that play activities offer children an important opportunity to practice skills such as focussing attention and sharing ideas, as well as to develop knowledge related to activities such as construction or exploration. Thus, through providing nuanced opportunities for social development, informed by this knowledge of gender-specific patterns, there are potential gains to be made in achievement in other areas of learning as well as in general social behaviour.

Table 4.1

*Descriptive statistics for all measures and in relation to gender
(n=37, boys n=22, girls n=15)*

	Possible scores	M (SD)	Boys	Girls	t
British Picture Vocabulary Scale	0 - 168	34.79 (13.07)	30.68 (13.06)	40.36 (11.23)	-2.23*
PIPPS Interactive	1 - 4	2.72 (.59)	2.56 (.56)	2.90 (.57)	-2.78**
PIPPS Disruptive	1 - 4	2.06 (.62)	2.10 (.61)	2.03 (.63)	.50
PIPPS Disconnected	1 - 4	2.10 (.53)	2.07 (.53)	2.15 (.54)	-.69
CBQ Surgency	1 - 7	4.20 (.91)	4.40 (.97)	3.95 (.78)	2.15*
CBQ Negative Affect	1 - 7	4.43 (.72)	4.39 (.69)	4.49 (.76)	-.61
CBQ Effortful Control	1 - 7	4.74 (.70)	4.49 (.54)	5.06 (.76)	-3.73***
Emotion understanding	0 - 57	46.38 (8.70)	45.54 (10.00)	47.60 (6.50)	-.70
Theory of Mind	0 - 5	1.21 (1.40)	1.09 (1.30)	1.40 (1.55)	-.66

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4.2

Correlations between measures subdivided by gender (boys above the diagonal, girls below the diagonal)

(n=37, boys n=22, girls n=15)

	BPVS	PIPPS Interactive	PIPPS Disruptive	PIPPS Disconnected	Emotion Understanding	Theory of Mind	Surgency	Negative Affect	Effortful Control
BPVS	--	.30	.06	-.10	.09	.54*	-.33	-.35	.29
PIPPS Interactive	.31	--	-.09	-.65***	.17	.26	.31*	-.21	.61**
PIPPS Disruptive	.17	.16	--	.01	.10	-.09	.34*	.42**	-.22
PIPPS Disconnected	-.09	-.21	.65***	--	.09	-.21	-.46**	.17	-.51***
Emotion Understanding	.71**	.32	.54*	.19	--	.34	.21	.13	.09
Theory of Mind	.55*	.48	-.21	-.25	.28	--	-.11	-.07	.18
Surgency	.02	.60***	.38*	-.18	.18	-.11	--	.19	.16
Negative Affect	.22	-.03	.48**	.15	.02	.10	.09	--	-.18
Effortful Control	.24	.53**	-.22	-.50**	.00	.42	.35*	.06	--

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4.3

BPVS, practitioner-rated temperament and emotion understanding scores as predictors of PIPPS play patterns
(n=37, boys n=22, girls n=15)

		Interactive						Disconnected						Disruptive					
		All		Boys		Girls		All		Boys		Girls		All		Boys		Girls	
		R ²	β	R ²	β	R ²	β	R ²	β	R ²	β	R ²	β	R ²	β	R ²	β	R ²	β
Step 1	BPVS	.16	.40	.09	.29	.09	.30	.02	-.14	.01	-.10	.01	-.09	.00	.05	.00	.06	.03	.17
Step 2	BPVS	.68	.06	.71	.01	.76	-.22	.41	.06	.50	.07	.33	-.06	.42	.51*	.38	.54	.85	-.19
	CBQ Surgency		.18		.02		.58*		-.34*		-.42 ⁺		-.10		.43*		.36		.53*
	CBQ Negative Affect		-.02		-.03		.03		.09		.12		-.01		.33*		.45 ⁺		.31
	CBQ Effortful Control		.69***		.78***		.21		-.45*		-.38		-.39		-.40*		-.12		-.59
	Theory of Mind		.14		.08		.52*		-.26		-.31		-.20		-.28		-.29		.02*
	Emotion understanding		.13		.08		.24		.09		.08		.25		.01		-.14		.58

⁺ $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

Paper 5

Peer play, emotion understanding, and socio-moral explanation:

The role of gender

A version of this paper has been published as a brief report:

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Abstract

Engagement in peer play is an important factor in young children's adjustment as they make the transition to school. We evaluated individual differences in peer play within a sample of 58 children aged 4-5 years. Among boys, but not among girls, emotion understanding and verbal ability independently served as positive predictors of interactive peer play and negative predictors of disconnected play. Among girls, but not among boys, interactive peer play and socio-moral reasoning about peer conflict situations independently predicted sociometric most-like nominations. Performance on a battery of theory of mind tasks was positively associated with language ability, but did not predict peer play patterns or sociometric outcomes. The results provide a foundation for further research on divergence in the early peer play of girls and boys.

Introduction

School adjustment is enhanced by the formation and maintenance of positive social connections and friendships, particularly at times of transition such as starting school (Ladd, 1990). An absence of positive social behaviours is also considered an early risk factor for future social-emotional maladjustment and low well-being (Asendorpf, Denissen, & van Aken, 2008). In this study, we consider the correlates of individual differences in early peer play with attention to the distinctive patterns for boys and for girls, using a multi-method design involving assessments of theory of mind, emotion understanding, socio-moral explanation, teacher ratings of peer play, and sociometric nominations.

Aspects of socio-emotional understanding

The ability to recognise, label, and predict basic emotions should provide children with a stronger base for developing connected interactions with each other. Indeed, longstanding research has shown emotion understanding to be an important social-cognitive predictor of positive social behaviours, based on observation of specific emotion displays and performance on puppet vignette tasks (Denham, 1986). A basic awareness of other's emotional experiences, and a capacity to predict other's emotional reactions to common events, is likely to be an important foundation for key play skills such as sharing toys, initiating and maintaining play with others, and negotiating potential conflict situations.

There is also evidence that early skills in reasoning within the socio-moral domain are connected with aspects of peer interactions, including prosocial behaviours. Specifically, Malti et al. (2009) showed that 6-year-old children's 'moral motivation',

comprised in part by the capacity to provide appropriate moral explanations for transgressions, was significantly related to ratings of prosocial behaviour.

Understanding in the moral domain may thus be considered as crucial to children's learning about everyday conflict resolution and therefore their maintenance of peer relationships. The present study therefore tests the hypothesis that socio-emotional understanding and socio-moral explanations of transgressions during peer interactions will positively predict teacher ratings of interactive play (e.g., sharing ideas, helping to resolve conflicts) and negatively predict teacher ratings of disconnected play (e.g., wandering aimlessly, withdrawing).

Finally, the social understanding measured by standard 'theory of mind' tasks is also likely to be associated with interactive peer play. The recognition that every person has distinctive representations of reality is a significant step towards effective adaptation to, and monitoring of, reactions in interactions and to events. In other words, the ability to recognise that these mental states inform reactions is key to understanding our own and other's motivations. A particularly significant milestone in this process is recognition that others will act on a belief which we know to be false. This understanding is generally accepted to be gained by children at around 4-5 years old and is described as a hallmark of theory of mind understanding. The acquisition is demonstrated with a scenario task that requires the children to identify how a character will react given their false-belief (Wimmer & Perner, 1983). This ability to recognise ways in which another may perceive events significantly changes the sense which children make of the world. More broadly, the child's understanding of his or her own and other's beliefs, desires, intentions, and perceptions informs both prediction and explanation of responses and reactions (Hughes & Leekam, 2004).

Significantly, children in atypical populations such as those with autism have been found to have particular difficulty in demonstrating false-belief understanding in the task described (Baron-Cohen et al., 1985). However some children with less severe autistic traits have been able to succeed in the false-belief task (Frith, Happe & Siddons, 1994). This has raised questions about the role of theory of mind in social competence within the general population; however, the picture here is even less clear (Banerjee et al., in press; De Rosnay & Hughes, 2006; Hughes & Leekam, 2004; Peterson & Slaughter, 2006). As would be expected, assessment methods have been questioned and using a battery of assessment tasks has been shown to improve reliability of findings (Hughes, et al., 2000). It was therefore decided in this study to employ the unexpected contents, unexpected location and nasty surprise activities.

The present study

Notwithstanding the research described above, we know little about whether the aspects of social understanding described above would hold as independent predictors of individual differences in the naturalistic context of school-based peer play, as perceived by teachers (Fantuzzo, et al., 1995). Much previous research on early social development had been concerned with general deficits in social competence and problem behaviours (Ladd, 2006; Tremblay, 2000; Tremblay et al., 1999), rather than context-specific manifestations of social competence. Fantuzzo et al., (2002) have attempted to redress this imbalance by identifying the key abilities involved in successful peer play. Highlighting the importance of the play context for social learning, Fantuzzo and colleagues also note the associated cognitive, self-regulation and motivational competencies gained through the vehicle of play. Their research findings indicated that children reported to demonstrate interactive play characteristics at home were also those rated similarly by teachers. Further, demonstration of interactive play

characteristics was associated with positive approaches and motivation towards learning. A similar pattern of congruency between home and school behaviours was found for both disconnected and disruptive play characteristics (Coolahan et al., 2000). In view of this, studying the ways in which theory of mind, emotion understanding, and socio-moral reasoning are connected to peer play provides a crucial avenue for understanding highly significant variations in children's social functioning and school adjustment.

We must also recognise, however, important distinctions in the nature of young boys' and girls' peer play. These gender differences in early peer interactions reflect divergence in levels of physical and boisterous (rough-and-tumble) play, which are regularly found to be higher among boys (Golombok & Fivush, 1994), and levels of more intimate play in smaller groups, which are higher among girls (Lever, 1976). Given these important differences in the nature of peer play, the correlates of peer success may be very different for boys and girls. In fact, many of the skills that mark out 'interactive' play within teacher rating scales – helping others, comforting others, politely directing other's actions (Fantuzzo et al., 1995) – are likely to be essential for the success of girls' small-group interactions, whereas young boys' playmate choices will be less dependent on such skills and more likely to be focused on the common participation in specific physical activities and on establishing dominance within those interactions (see Maccoby, 1990). However, we do not yet have an adequate empirical basis for determining if teacher perceptions of specific 'interactive' play skills are indeed distinctively associated with playmate choices among girls more than among boys.

It is recognised that the particular variables being explored in this study (i.e., emotion understanding, theory of mind, socio-moral explanation) should contribute to

the process of making social connections. It is not clear however, whether some variables are more important than others and if patterns of association are similar for boys and girls. Our hypotheses for this study were that: 1) aspects of socio-emotional understanding (theory of mind, emotion understanding, and socio-moral explanations) will positively predict teacher ratings of interactive play and negatively predict teacher ratings of disconnected play; and 2) girls (more so than boys) with higher ratings of interactive play will tend to receive more sociometric most-like peer nominations.

Method

Participants

The Headteacher of a two-form primary school in London, who had previously shown interest in the development of social competence in young children, was approached with an invitation for her school to participate in this study. The sample of children consisted of all children (31 boys and 27 girls) currently attending the two Reception classes in the primary school; the classrooms occupied an open plan area so that all children were able to socialise with each other. The ages of the children ranged from 55 to 67 months (M 60.9, SD 3.4). The age profile for boys and girls was very similar (boys M 61.7 SD 3.8, girls M 60.2, SD 2.7). Approximately a third of the children were (34%) White British, 14% Black Caribbean, 9% Black African, 3 % Bangladeshi, 2% Indian, 7% Black other 5% Mixed White Asian, 5% mixed White Black Caribbean, 21% any other. Permission to participate was granted by the Headteacher, after parents had been informed about the research and had the opportunity to withdraw their children.

Measures

Peer play. The Penn Interactive Peer Play Scale (PIPPS) uses a 32-item teacher-report questionnaire to measure three dimensions of children's responses in a free play situation, with each item rated on a scale from 1-never to 4-always: interactive play (e.g., shares ideas, $\alpha = .73$), disruptive play (e.g., destroys other's things, $\alpha = .92$), and disconnected play (e.g., wanders aimlessly, $\alpha = .88$). The member of staff considered most familiar with the child was asked to complete these ratings.

Sociometric nominations. Children were invited to provide free nominations of peers within the year group (across both classes, since the classes regularly mixed) with whom they most liked to play. Most children gave around 2 and 3 nominations ($M = 2.62$, $SD = 1.76$). We counted the total number of most-like nominations received by each child; this ranged from 0 to 7.

Emotion understanding. Because of our interest in the simple capacity to recognise, label, and predict basic emotions, we used an adaptation of Denham's (1986) measure of emotion understanding: receptive ('point to...') and expressive ('how does ... feel?') responses to happy, sad, and angry photographs and puppet faces, and predictions of happy, sad, or angry emotional responses for hypothetical characters in unambiguous emotion-eliciting situations (e.g., being given a present). In five initial photograph trials, children simply had to identify either the happy, sad, or angry face in a pair of photographs and received a point for each correct response. In all other trials (6 emotion recognition and 6 emotion prediction), two points were awarded for a correct response, and one point was given if the emotion description was incorrect but the valence was appropriate (e.g., sad instead of angry). The points scored for all of the emotion understanding tasks were combined so that the maximum score was 29 points.

Socio-moral explanation. Two hypothetical scenarios depicted a child pushing another child off a desired item of play apparatus, and snatching away a toy from another child. In each scenario, children were initially asked to identify whether or not the described behaviour was a ‘good thing to do’, and all but three of the children recognised that these were not good things to do. However, in line with Malti et al. (2009), we also proceeded to ask the children to justify their answers. An appropriate justification, scoring 1 point, made reference to either: rule-breaking (e.g., “you mustn’t push”), hurting or upsetting the other child (e.g., “she might bump her head”, “she will feel sad”), or a prosocial alternative (e.g., “they should both play together”). Simply restating the action (e.g., “he pushed her”), unrelated comments (e.g., “they might be friends sometimes”), and “don’t know” responses were considered inappropriate and were scored as 0. Children received a score out of 2 across the two scenarios.

Theory of mind. Research by Hughes (2000) suggests that reliability of theory of mind assessments is increased where several of the recognised tasks are used. Informed by these findings, in this study the unexpected contents, unexpected location and nasty surprise activities were used. The unexpected contents task comprised a prototypical sweet container (Smartie tube) containing small building bricks. Children were asked, before holding or seeing inside the tube, what they thought was inside. Having been shown the building bricks inside, they were asked firstly to name what was in the box, and secondly what they had thought was in the box before they had seen the contents (own false belief). As a control, the children were then asked what was really in the box. A puppet matched to the child’s gender, was then introduced and children were told that the puppet had not seen inside the box. They were then asked to predict what the puppet would think was in the box (other’s false belief). Finally, the children were asked again what was really in the box as a further control question. To pass the assessment the

children were required to correctly identify their own false belief, predict the puppet response and answer the two control questions.

The unexpected location task involved two small Lego boxes with lids, one yellow and one blue, two Playmobile characters and a suitably sized football. The children were introduced to the characters, Joshua and Samuel, and it was explained they had been playing football. The following sequence was then demonstrated using the characters and props: Joshua puts the football in the blue box and goes to see his Mum, Samuel takes the football from the blue box and puts it in the yellow box and goes to his bedroom, Joshua comes back to get the football. The children were asked where Joshua will look for the football (other's false belief) and if necessary prompted by the question "In the yellow or blue box?" The children were finally asked where the football was really and where it had been at the start as control questions. The children were considered to have passed the assessment if they correctly answered where Joshua would look for the football and the two control questions.

Finally, the belief-desire reasoning "nasty surprise" task was used, with the same puppets as for the Emotion Understanding assessments. The gender of the puppet was matched to the child with the puppet of the opposite gender instigating the nasty surprise. The story was told with the puppets, a small milk bottle and a prototypical juice bottle as props. The children were told, with appropriate emotional responses (milk – oh yuck! Errgh horrible!, juice – mmm, yum, lovely) from the puppet that the puppet's favourite drink was juice and that they really did not like milk. They were first asked how the puppet would feel if they were given the bottle of juice and then a bottle of milk. It was explained that the protagonist puppet decided to play a trick on the other puppet. The following was then acted out: the protagonist puppet takes the bottle of juice, empties out the contents and fills it with milk, hides the milk bottle, and then goes

out to play; the other puppet then returns really thirsty from playing outside. The children were told that the puppet can see the juice bottle on the table but cannot see what is inside it and they were asked how the puppet would feel: happy or not happy. They are then asked to justify their answer, say what the puppet thinks is in the bottle (other's false belief) and what is in the bottle really, as a control question. Finally, they are asked how the puppet would feel after a drink and again to justify their answer. To pass the false-belief question (i.e., what did the puppet think was in the bottle) the children also had to pass the reality control question. To pass the emotion test question (i.e., how did the puppet feel when he/she saw the juice bottle) they also had to pass the reality control question (i.e., what was in the bottle really) and all of the emotion contingency questions (i.e., how does the puppet feel).

An aggregated score for theory of mind (maximum available 5 points) was calculated comprising the points from each of the following questions: unexpected contents task (own false belief and other's false belief), unexpected location task (other's false belief) and belief – desire reasoning task (emotion test and other's false belief).

Receptive vocabulary. Raw scores on the British Picture Vocabulary Scale (Dunn et al., 1982) were used as an indicator of children's receptive vocabulary.

Procedure

The relevant staff member completed the peer play ratings for each child independently. The first author (blind to the peer play ratings) conducted the assessment tasks, in a quiet area outside the classrooms, and children were free to leave at any time. The order in which the tasks were presented were: emotion understanding, theory of mind, socio-moral explanation, sociometric nominations, and BPVS.

Results

Table 5.1 shows mean scores for boys and girls on BPVS, peer play dimensions, emotion understanding, theory of mind, socio-moral explanation and sociometric nomination. No significant differences were found between boys and girls on any of the measures. Although the socio-emotional understanding assessments used in this study were relatively straightforward, it is important to note that the percentage of boys and girls to achieve a perfect score were very similar for emotion understanding (girls 55%, boys 45%) and theory of mind understanding (girls 40%, boys 39%) as shown in Table 5.2.

We next examined the relationships among the measures. Preliminary analysis of scatter plots showed different patterns for boys and girls. Table 5.3 shows the intercorrelations for each gender separately. For boys, BPVS correlated positively with PIPPS interactive play ratings, theory of mind and socio-moral explanation. For girls, BPVS correlated positively with emotion understanding and theory of mind. There was also a negative correlation between BPVS and PIPPS disconnected play ratings for the boys. For girls, there was a negative correlation between BPVS and PIPPS disruptive play ratings. For boys, but not for girls there was a positive correlation between theory of mind and the ability to provide a socio-moral explanation. For girls only, there was a positive correlation between sociometric nominations and both PIPPS interactive play ratings and being able to give a socio-moral explanation.

Regression analyses, undertaken separately for boys and girls, were used to examine the value of emotion understanding, theory of mind and socio-moral explanations for predicting each peer play dimension, after controlling for receptive vocabulary. As shown in Table 5.4, teacher ratings of boys' interactive peer play were

positively predicted by both emotion understanding⁴ and receptive vocabulary, and ratings of disconnected peer play were negatively predicted by the same variables. None of the variables predicted disruptive peer play among boys, and none of the variables predicted either PIPPS interactive or disconnected peer play scores among girls, as shown in Table 5.5 (in all cases, $\beta < .15$, $p > .20$). Direct tests of moderation by gender were calculated by adding gender and the interaction of Emotion Understanding with gender as a final step in the regression. This revealed a significant interaction effect for the prediction of PIPPS disconnected play ($p < .05$), while the interaction approached significance for PIPPS interactive play ($p < .08$).

Further regression analyses examined emotion understanding, theory of mind, socio-moral explanations, PIPPS interactive peer play characteristics as predictors of most-liked sociometric nominations, again after controlling for receptive vocabulary. Tables 5.6 shows that there were no significant predictors for boys' most-liked sociometric nominations. But for girls, as shown in Table 5.7, PIPPS interactive and socio-moral explanation were significant predictors of most-liked sociometric nominations. Direct tests of moderation by gender were calculated by adding gender and the interaction of PIPPS interactive with gender as a final step in the regression. The interaction of PIPPS interactive with gender approached significance as a predictor

⁴We noted that the majority of children scored highly on the emotion understanding task. Further investigation confirmed that, after controlling for BPVS scores, the 14 boys who scored perfectly on emotion understanding were rated significantly higher on interactive play (adjusted M 3.03, SE .09) than the 17 boys who missed at least some points on the emotion understanding task (adjusted M 2.77, SE .08), $F(1,28) = 4.20$, $p = .05$.

of sociometric ratings ($p < .07$). However, further analysis showed no significant interaction of socio-moral explanation with gender.

Discussion

Our first hypothesis, that teacher ratings of interactive play would be positively predicted by socio-emotional understanding (theory of mind and emotion understanding) was partially supported. Emotion understanding was found to be predictive of teacher PIPPS interactive play ratings even after controlling for language ability. However, this was the case only for boys. Moreover, the theory of mind and social-moral understanding scores were not found to be predictive of teacher rated PIPPS interactive play for either boys or girls. However, in line with the second hypothesis, teacher-rated interactive play was a predictor of most-like peer nominations specifically for girls. In addition, among girls only, socio-moral explanations also predicted the most-like peer nominations. These data provide partial support for our hypotheses, and offer preliminary evidence of early divergence between girls and boys in the correlates of peer play.

Socio-emotional understanding and peer play

The knowledge, skills, and attributes that enable the formation of social connections are complex and develop over time (Hay, Castle, Davies, Demetriou, & Stimson, 1999; Howes et al., 1988; von Salisch, 2001). Among these are emotion understanding, theory of mind and socio-moral awareness. As we noted earlier, researchers have suggested that emotion understanding is important in making and sustaining positive social relationships (De Rosnay, Pons, Harris, & Morrell, 2004; Dunn & Hughes, 1998; Thompson, 1987). Our findings suggest that levels of emotion

understanding did underpin teacher ratings of interactive play in boys, yet they did not predict interactive play among girls.

One intriguing possibility is that girls may be directly socialised by parents and other agents to exhibit ‘interactive’ and prosocial behaviours: Hastings, McShane, Parker, and Ladha (2007) recently showed that maternal socialisation particularly contributed to the prediction of compassionate, prototypically feminine prosocial behaviours among girls, behaviours which could conceivably promote more connected and interactive play patterns. In contrast, such behaviours in boys – because they do not play as central a role in the gender-typed ‘script’ socialised by parents – may be more dependent on the children’s own advances in emotion understanding.

In fact, both parents and staff in preschools have been found to reinforce gender-typical behaviours and activity choices (Etaugh & Liss, 1992; Fagot & Leinbach, 1989; Turner & Gervai, 1995). Furthermore, clear gender differences have been identified in the quality and content of conversations between parents and children (Denham, Zoller, & Couchoud, 1994; Fivush, Brotman, Buckner, & Goodman, 2000). Parents’ discussions with their daughters, in comparison with their sons, have been found to be more focused on interpersonal relationships. This may provide specific opportunity to review and reflect on the details of peer interactions and the consequences of particular responses. All of this may serve to promote girls’ interactive play in a way that is not mediated by individual differences in emotion understanding; among boys, on the other hand, emotion understanding may be a necessary foundation for the qualities of peer play identified as interactive in this study.

An alternative, though closely related, explanation is that emotion understanding is indeed a significant predictor of interactive peer play for girls, but only at an earlier age, before gender-typed scripts for prosocial play behaviours have been fully socialised

(see Ensor & Hughes, 2005; Mathieson, & Banerjee, 2010). Taumoepeau and Ruffman (2008) have noted that effects of maternal talk at a very early age – in the first years of life – can play a key role in scaffolding social understanding (see also Dunn et al., 1991; Meins et al., 2002). Thus, it seems plausible that the links between emotion understanding and social competence could be apparent in girls (as well as boys) younger than those examined here.

Further questions are raised by the fact that the theory of mind battery used in the present study did not significantly predict either peer play patterns or sociometric nominations. Previous studies have also reported mixed results in terms of the relationship between theory of mind understanding and social behaviours, particularly with preschool children (Badenes et al., 2000; Cassidy, Werner, Rourke, Zubernis, & Balaraman, 2003). However, recent work by Caputi, Lecce, Pagnin and Banerjee (2011) provides longitudinal evidence that suggests that the link between theory of mind and peer acceptance may be dependent on theory of mind advances being translated into prosocial, cooperative and helpful behaviours. The factors that determine whether or not such positive behaviours emerge from theory of mind may depend on a range of other temperamental and environmental moderators, which need to be addressed in future research; conceivably, theory of mind abilities can be used for achieving negative as well as positive social goals.

Finally, it must be recognised that basic verbal abilities may also be highly relevant to children's peer play competencies. In this study, receptive language ability was found to be a positive predictor of social competence, particularly among boys. Previous research has also shown that language development is influenced by gender (Kaiser, Cai, Hancock, & Foster, 2002; Leaper & Smith, 2004; Stowe, Arnold & Ortiz 1999) and may contribute to the social interaction characteristics of young children. In

one study of children from a low-SES background, those who were identified as having problem behaviours were more likely to have poor language skills, and this was particularly the case for boys (Kaiser et al., 2002). As was the case with emotion understanding, boys' advances in verbal abilities may be crucial for developing the interactive peer play qualities measured in the present study, because the latter have not been socialised in the same way as they are in girls.

Interactive play, socio-moral reasoning, and sociometric choices

Our hypothesis that interactive play would predict most-like peer nominations particularly in girls was supported, underlining the value of the teacher-rated interactive skills (e.g., helping and comforting others) for girls' interactions in particular. This provides preliminary evidence for divergence in the predictors of playmate choices of young boys and girls, consistent with longstanding observations that girls' interactions focus more on sustaining relationships and establishing agreement, in comparison with boys' focus on physical activities, competition and assertions of dominance (Maccoby, 1990). Thus, whereas the indicators of interactive peer play patterns used in the present study may predict sociometric choices among girls, developing strategies and responses that challenge others and increase status in the social hierarchy may be more important for boys' sociometric choices. A more fine-grained analysis of language may also be useful here. Boys have been shown to use more assertive language, in keeping with the suggestion that their social connection patterns are more competitive and dominance orientated. In contrast, for girls the typical intimate play in smaller groups is characterised by more affiliative language (Leaper & Smith, 2004), which is likely to be directly reflected in the positive interactive qualities measured in the present study. In future research, studying the kinds of assertive language utilised by boys in group

interactions may be a crucial step towards understanding the specific peer play competencies that promote social success for each gender.

Over and above interactive play, we found that the capacity to make and justify negative judgments about moral transgressions was a significant predictor of girls' playmate nominations. It is not surprising that the ability to understand and explain moral dimensions of conflict situations should be valued by peers, but it is noteworthy that this was the case only for girls, and that this socio-moral reasoning independently predicted peer nominations rather than simply contributing to greater interactive play. The real-life experience of children at play inevitably involves conflict and its resolution, both among boys and among girls, but our data suggest that the moral reasoning about transgressions that can take place during peer interactions may be more important for sustaining a positive position within girls' peer groups at this age. This is in line with the notion of a morality of care being particularly salient for girls (Donenberg & Hoffman, 1988) and the finding that at 4 years of age, girls were more likely than boys to consider interpersonal issues when making moral justifications (Dunn, Cutting, & Demetriou, 2000). Our data suggest that this may reflect the importance of moral reasoning for young girls' peer success (as indicated by playmate choices). The significance of such moral reasoning was not evident in the case of the boys. Just as with the teacher-rated 'interactive' play skills, the capacity to provide appropriate moral justifications for transgressions may simply not have as central a role in the physical and dominance-oriented activities of young male peer groups.

Conclusion

Entry to school usually exposes children to a new and more varied peer group in which they must learn to operate. This study provides preliminary insights concerning

the divergent correlates of early peer play in boys and girls during this vital period of development. Clearly, our findings need to be replicated utilising a larger sample, and preferably with the advantage of direct observation of peer play together with more elaborate measures of emotion understanding and socio-moral reasoning. It will be particularly important to explore in more detail the characteristics of boys' interactions in their characteristic larger group play, in order to better understand the specific play competencies that predict sociometric choices. However, our study provides an initial base for examining the developmental trajectory of social competence from a perspective that fully considers the distinctive features of boys' and girls' early peer interactions. The more clearly we are able to identify the elements which influence the gender-specific social competence of young children, the more likely we are to find ways to support children who struggle to make supportive connections with their peers.

*Table 5.1**Table of means for all children including in relation to gender(n=58, boys n= 31, girls n= 27)*

	Possible score	Mean (SD)		All
		Boys	Girls	
British Picture Vocabulary Scale	0 -168	55.29 (15.74)	49.59 (11.46)	52.64 (14.09)
PIPPS interactive score	1.89 – 3.44	2.88 (.39)	2.96 (.33)	2.92 (.36)
PIPPS disruptive score	1.08 – 3.00	1.82 (.52)	1.68 (.45)	1.75 (.49)
PIPPS disconnected score	1.11 – 3.00	1.80 (.51)	1.90 (.31)	1.85 (.43)
Emotion Understanding score	0-29	28.19 (.87)	28.07 (1.56)	28.13 (1.23)
Theory of mind	0-5	3.65 (1.47)	3.19 (1.90)	3.43 (1.68)
Socio-moral explanation	0-2	1.10 (.79)	1.30 (.91)	1.19 (.84)
Sociometric nomination	0-7	2.42 (1.70)	2.85 (1.83)	2.62 (1.76)

*Table 5.2**Perfect scores for emotion understanding and theory of mind scores for boys and girls*

	Number gaining perfect score	
	Boys (n=31)	Girls (n= 27)
Theory of mind	12 (39%)	11 (40%)
Emotion understanding	14 (45%)	15 (55%)

Table 5.3

Correlations between measures according to gender – boys above diagonal, girls below ($n=58$, boys $n=31$, girls $n=27$)

Boys								
	BPVS	PIPPS Interactive	PIPPS Disruptive	PIPPS Disconnected	Emotion Understanding	Theory of Mind	Socio-moral Explanation	Sociometric
BPVS	---	.45 ⁺	-.10	-.34 ⁺	-.19	.65***	.39*	.13
PIPPS Interactive	-.00	---	-.52*	-.73*	.24	.19	.27	.16
PIPPS Disruptive	-.40 ⁺	-.028	---	.73*	-.23	-.03	-.23	.20
PIPPS Disconnected	-.19	-.35	.46*	---	-.29	-.17	-.13	.06
Emotion Understanding	.51*	.11	-.30	-.03	---	-.28	-.17	.21
Theory of Mind	.59**	-.05	-.21	-.05	.19	---	.37*	.18
Socio-moral Explanation	-.00	.08	-.03	.06	.25	-.01	---	.17
Sociometric	.23	.51**	-.03	-.12	.33	.15	.46*	---
Girls								

+ $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5.4

Emotion understanding, theory of mind and socio-moral explanation as predictors of PIPPS for boys after controlling for language (n=31)

		Interactive		Disruptive		Disconnected	
		R ²	β	R ²	β	R ²	β
Step 1	BPVS	.20	.45*	.01	-.10	.12	-.34+
Step 2	BPVS	.39	.52*	.13	-.09	.25	-.40+
	Emotion Understanding		.34+		-.28		-.37*
	Theory of Mind		-.11		.05		-.01
	Socio-moral explanation		.16		-.26		-.04

+ $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5.5

Emotion understanding, theory of mind and socio-moral explanation as predictors of PIPPS for girls after controlling for language (n=27)

		Interactive		Disruptive		Disconnected	
		R ²	β	R ²	β	R ²	β
Step 1	BPVS	.00	-.00	.16	-.40*	.03	-.19
Step 2	BPVS	.02	-.04	.18	-.36	.05	-.30
	Emotion Understanding		.13		-.12		.09
	Theory of Mind		-.06		.03		.11
	Socio-moral explanation		.04		.00		.04

+ $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5.6
Emotion understanding, theory of mind and socio-moral explanation as
predictors of sociometric nominations for boys after controlling for
language and PIPPS interactive play patterns (n=31)

		Sociometric R ²	β
Step 1	BPVS	.02	.13
Step 2	BPVS	.03	.08
	PIPPS Interactive		.12
Step 3	BPVS	.12	-.01
	PIPPS Interactive		.01
	Emotion Understanding		.29
	Theory of Mind		.22
	Socio-moral explanation		.14

+ $p < .10$ * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5.7
Emotion understanding, theory of mind and socio-moral explanation as
predictors of sociometric nominations for girls after controlling for
language and PIPPS interactive play patterns (n=27)

		Sociometric	
		R ²	β
Step 1	BPVS	.052	.229
Step 2	BPVS	.315	.230
	PIPPS Interactive		.513**
Step 3	BPVS	.480	.146
	PIPPS Interactive		.477**
	Emotion Understanding		.089
	Theory of Mind		.071
	Socio-moral explanation		.377*

+*p*< .10 **p*<.05, ***p*<.01, ****p*<.001

Overall Conclusion

This programme of empirical work was designed to explore the roles of temperament and socio-emotional understanding in young children's early peer play. Peer play was seen as a particularly important context in which children begin their independent social relationships. To be perceived as socially competent, children need to demonstrate an ability to establish and maintain interactions with play partners. A range of definitions of social competence was explored in the introduction and the concept of being *effective in interaction* was seen as underpinning adult and peer perceptions of social competence for young children. Having taken this definition of social competence as *effectiveness in interaction* (Rose-Krasnor, 1997), the thesis focused on testing several hypotheses relating to temperament, emotion understanding, theory of mind, and socio-moral reasoning as factors involved in early social competence. A multi-method, multi-informant approach was used to gather data relating to four samples of young children attending day nurseries and one school in a London Local Authority. As increasing numbers of children in the UK are attending day nursery provision this provided a particularly useful context to further understand young children's current social experience.

Exploring the early development of social competence is important to extend our understanding of the attributes and abilities that contribute to successful interactions. Young children who have struggled to successfully interact with peers have been found to develop future externalising and internalising behaviour problems (Dodge, et al., 1994; Ensor et al., 2010; Ladd et al., 1996). Therefore understanding more about those who are successful at this early stage will inform preventative programmes for use with those considered at risk of later difficulty. The development of early peer relationships is a key part of young children's life experience, particularly as positive social

connections may be a potential protective factor for future well being (Coolahan et al., 2000; Tremblay et al., 1999).

Tables C.1 and C.2 summarise the different constructs investigated by the five papers of this thesis, together with the methodologies used to capture them. The methodological approach began with initial systematic observations of dyadic and triadic peer play to examine meaningful variations in patterns of peer play, and to identify core components of social competence (Paper 1). This provided preliminary confirmation that individual differences in characteristic play patterns could be reliably identified through systematic observation. It was particularly noticeable that some children demonstrated interactive responses to play partners while others were disconnected in their play. Having identified such patterns through observations, it seemed important to explore if parents and practitioners converged or diverged in their reports on children. Questionnaires related to socio-behavioural adjustment were completed by both parents and childcare practitioners for two samples, one of 2- to 3-year olds and one of 3- to 4- year olds (Papers 2 and 3), to identify patterns of convergence in their judgments. Further, adult questionnaires were used to collect data about temperament (parents) and peer play interactions (practitioners) for these two age groups. As individual differences in patterns of peer play were clearly apparent, additional socio-cognitive predictors of social competence as demonstrated in interactive play needed to be explored. Therefore, for two samples of 4- year-olds and 5- year- olds, practitioner questionnaires and assessment tasks were used to explore the roles played by temperament, socio-emotional understanding and socio-moral reasoning in children's emerging social competence. Specifically, the aim was to gain further insight into the links and predictive relations that these constructs may have with peer popularity and characteristic patterns of peer play.

Table C.1
Summary of measures used across all papers

Summary of studies of social skills and PAPA											
Study	Parent measures			Practitioner measures				Assessment tasks			
		Temperament (CBQ)	SDQ		SDQ	Penn Interactive Peer Play (PIPPS)	Temperament (CBQ)		BPVS	Emotion Understanding	Theory of Mind
	n			n				n			
Paper 2	10	X	X	195	X	X		28	X		X
	4										
Paper 3	75	X	X	189	X	X		0			
Paper 4	0			74		X	X	37	X		X
Paper 5	0			58		X		58	X	X	X

Table C.2
Summary of age and ethnicity data across all papers

Study	Age	Ethnicity
Paper 2	M30.7 SD 4.9	43% White British 17% Black Caribbean 12% Black African 28% other
Paper 3	M43.5 SD 4.5	48% White British 17% Black Caribbean 4% Black African 24% other
Paper 4	M48.7 SD 5.6	60% White British 14% Black Caribbean 10% Black African 16% other
Paper 5	M60.9 SD 3.4	34% White British 14% Black Caribbean 9% Black African 43% other

Main findings

Overall, the studies reported here suggest that peer play is an important context in which to explore children's early social competence, and is one in which core components of successful social functioning can be identified. The main findings of the research were as follows. Firstly, systematic observation revealed clear differences in individual children's peer play interactions, and identified core components that contributed to interactive play. Secondly, there were different patterns of convergence and divergence in parent and practitioner judgments about socio-behavioural adjustment depending on the age of the children. Thirdly, there was evidence that parental judgment of temperament predicts children's behavioural responses outside of the home context. In addition, the effects of temperament on ratings of general social-behavioural functioning were found to be partially mediated by individual differences in peer play. Finally, the predictive relationships between elements of socio-emotional understanding (i.e., theory of mind, emotion understanding, socio-moral reasoning), temperament, and peer play characteristics were found to differ according to gender. In the following sections each of the research findings is reviewed in more detail and in relation to the development of young children's social competence. The theoretical and practical implications of the findings are also discussed and finally, possible future directions for research are explored.

There are, undoubtedly, demanding requirements for young children in establishing and maintaining friendships with peers. The peer play context, where there is minimum support from adults, provides an important context to explore children's current level of 'real life' social competence. The full complexity of the development of social competence was explored in some depth in the introduction to this thesis. This

included consideration of Rose-Krasnor's (1997) prism model which depicts the salient elements contributing to social competence, which is defined as *effectiveness in interaction*. This multi-level model highlights the three levels of theoretical perspective, self/other understanding and skills based knowledge which, she argues are necessary for social competence. The attractiveness of the Rose-Krasnor model is in the bringing together of the component elements into the fluidity of *effectiveness in interaction*, which chimes with the commonly understood concept of social competence. Attaining the goal of social competence and therefore *effectiveness in interaction* is a difficult process but presumably benefits from a sound beginning in early peer relationships. Therefore, in the programme of empirical work reported here, young children's social competence in peer play was observed and evaluated by both adults and peers.

In line with Rose-Krasnor's emphasis on the multiple components that are involved in social competence, many influences have been implicated as potentially significant in their impact on young children's social competence, ranging from general socialisation processes within the family and community to very detailed features of children's social cognition (Deater-Deckard, 2000; De Ruiter & Van Ijzendoorn, 1993; Dodge et al., 1994; Morgan, Farkas, & Wu, 2009). Having identified core components of successful peer play, this thesis was concerned with exploring the roles played by several specific variables, namely temperament, theory of mind, emotion understanding, and socio-moral reasoning. Also, previous research (Barbu, Cabanes & Le Maner-Idrissi, 2011; Golombok & Fivush, 1994; Lever, 1976; Maccoby, 2000) has found evidence of gender differences in children's early peer play and therefore in this thesis we considered the possible moderating role of gender in the associations between these variables and children's peer play.

Core components of connected peer play.

Previous research has advanced our understanding of the details and antecedents of problem behaviours (Denham, Workman, Cole, Weissbord, Kendziora, & Zahn-Waxler, 2000; Eisenberg, 2005; Ladd, 2006). It is important, however, to understand the alternative positive trajectory as well. In particular, our initial study was designed to help us achieve greater clarity regarding the skills, attributes and knowledge which socially competent children were able to employ and develop even in their very early peer relationships during the preschool period. It was also important to ground the research in children's real-life experience of peer play interactions. Thus, observation of children's play interactions – a crucial part of everyday life in day nurseries – was conducted as a means to identify key variations in levels of interactivity and disconnection in children's peer play.

Through direct observation it was possible to identify that there were significant individual differences in levels of interactivity and disconnection in dyadic and triadic peer play. Some children consistently refused other's entreaties to engage in joint play themes, took no part in the play and did not attempt to engage others in their play. Those who were most effective in their interactions were those who were able to select mutually engaging play themes, offer their own ideas and accept those of others to develop the play.

Through observations of the peer play sessions specific core elements could be identified which were present when play sequences were verbally connected. These recognisable core elements were indicative of the complexity of socially competent interactions. The first most easily recognisable component was a willingness to engage with playmates and to be positively interactive. The analysis of frequency and duration of connected conversations evidenced the relative engagement of each of the play

partners. In these connected conversations it was possible to identify instances of specific responses which supported the interactive behaviour, such as questioning, offering and accepting ideas to develop the current play theme. Further, children who were most successful were able to recognise and respond appropriately to their playmates' emotional reactions, both in reality and in the pretend play context. The ability of the playmates to exchange and share understanding of their pretend play in particular, was also observed to enhance the level of engagement of the children. This was confirmed by the relatively long connected conversations that were indicative of those which took place in the pretend and role play contexts. The connected conversations which focused on factual topics (e.g., who broke the toy or colour, shape size of play characters) tended to be shorter, less likely to develop play themes, and less engaging of other play partners.

Thus, the context of pretend and role play was found to be particularly fruitful in enabling connected conversations. In these conversations children played out situations which demonstrated their awareness of other's emotions and showed that they were able to respond appropriately (e.g., where a character was hurt or missing their mother and needed comfort and help). In line with this, the use of mental state words was found to be characteristic of more engagement in connected conversations. But, given that the context of pretend and role play was such an important feature of connected conversation, other language forms – such as those which signal pretend play – may be useful tools for children to engage others. This might include using character voices or speaking in the first person when playing the role of a character.

The language usage of those who enjoyed the most interactive play must be considered as a function not only of individual skills, but also of aspects of the dyad or group as a whole. Specifically, although the children demonstrating the most interactive

play also used the most mental state words, it was noteworthy that a close match between play partners in their use of mental-state words seemed to be important for effective, connected interactions. Where one play partner used many mental-state words, but the other did not, there was no evidence of more connected communications in the play session.

Finally, although the children were all given the same toys, the groups in this study showed a gender stereotypical pattern of interactions. The girls were significantly more engaged with each other, played for longer, had more connected conversations and demonstrated a greater shared understanding of the play themes than the boys. That is not to say that the boys did not try to connect with their play partners, but their connections were shorter and less successful in developing play themes. Of course, it is important to recognise that these findings emerge from a very small sample, and that the children in this study might have responded differently had they chosen their playmates. Nonetheless, the results do point to the possibility that gender could play an important role in shaping the characteristic interactions of young children's peer play.

Table C.3

Convergence in SDQ ratings between parents and practitioners

	Parent and practitioner SDQ correlations				
	Emotional Symptoms	Conduct Problems	Hyperactive	Peer Problems	Prosocial
Paper 2	.02	.14	.05	.15	.39***
Paper 3	.32***	.26**	.22*	.17	.18

* $p < .05$, ** $p < .01$, *** $p < .001$

Parent and practitioner judgments.

Table C.3 summarises the results of the analyses examining levels of convergence in SDQ ratings between parents and practitioners, across Papers 2 and 3.

Parent and teacher reported judgments of children's interactions have in past research been found to be divergent (Field & Greenberg, 1982; Seifer et al., 2004). Parents in particular have been found to present a more positive picture of their child's behaviour. Interestingly, there has not been extensive research into convergence between parents and childcare practitioners who arguably will know children more intimately than teachers in a school situation. But even here, aspects of divergence seem likely. Parent's judgments are undoubtedly informed by their unique knowledge of their individual child. On the other hand, childcare practitioners' judgments are informed by their extensive comparative knowledge of a large number of children (Seifer et al., 2004; Achenbach, 1987).

In this study parents and practitioners, although fulfilling different roles and seeing children in different contexts, were found to similarly judge some but not all aspects of socio-behavioural adjustment as measured by the Strengths and Difficulties Questionnaire (Goodman & Scott, 1999). For younger children (2-3 years, Paper 2), there was convergence in parent and practitioner judgments of prosocial behaviour. Both parents and practitioners agreed in their identification of children who were able to demonstrate consideration of other's feelings, helping others who were upset, and being kind to younger children. The adults did not agree, though, in their ratings of the 2 year old children who showed less positive behaviours, such as not getting along with other children, being fearful, or not doing as asked by an adult. However, for the older children (aged 3 years, Paper 3) convergence between the adults was found only in judgments of these problem behaviours. That is, ratings for parents and practitioners showed agreement in identifying children who tended to be fearful, worried or fought and argued with peers. However, it should be noted that direct comparisons of the correlation coefficients between the 2-year-olds in Paper 2 and the 3-year-olds in Paper

3 showed only a statistically significant increase with age in the degree of convergence for emotional symptoms ($z = 2.02, p < .05$). Therefore, the shift in patterns of convergence and divergence during the preschool years needs to be replicated with larger samples in the future, preferably with a longitudinal design. Nonetheless, the preliminary observations in this thesis carry some important implications, discussed in more detail below.

Temperament

Table C.4 summarises the results of the analyses examining temperamental dimensions as predictors of peer play, across Papers 2, 3, and 4.

At this early stage in children's independent social connections it was expected that temperament would be particularly important in enhancing or diminishing the effectiveness of their interactions. Temperament as a set of dimensional constructs is considered to emerge during the first year and is thought to interact with environmental influences such as parenting, sibling and peer relationships (Kochanska et al., 2000; Parker-Cohen & Bell, 1988). The result of the interaction between biological and environmental influences is the development of relatively stable individual differences in levels of emotional reactivity and self-regulation. In this programme of studies, key dimensions of temperament were measured using the short form of the Child Behaviour Questionnaire (Putnam 2006) which was completed by parents for the 2- and 3- year olds (Papers 2 and 3) and by practitioners for the 4- year olds (Paper 4).

The ability to regulate emotional responses to social cues is a critical element of successful social competence (Blair et al., 2004; Fabes et al., 1999). Thus, the temperamental dimension of effortful control has been implicated in the development of social competence (Eisenberg et al., 2001; Parker-Cohen & Bell, 1988; Rothbart et al., 2001). Findings from this study support this view, in that effortful control was found to

Table C.4

Temperament dimensions as correlates and predictors of peer play

Temperament (CBQ) and Practitioner PIPPS correlations (regression coefficients)									
	Interactive			Disconnected			Disruptive		
Paper 2 (Parent CBQ)									
Effortful Control	.22* (.23*)			-.02 (.03)			-.01 (.00)		
Surgency	.00 (-.02)			-.21* (-.24*)			-.06 (-.05)		
Negative Affect	.06 (.06)			-.06 (-.24)			.06 (.05)		
Paper 3 (Parent CBQ)									
Effortful Control	.20 (.27*)			-.11 (-.19)			-.16 (-.13)		
Surgency	-.05 (-.05)			.07 (.11)			.17 (.14)		
Negative Affect	-.12 (-.23)			.21 (.30*)			-.10 (-.02)		
Paper 4 (Practitioner CBQ)	All	Boys	Girls	All	Boys	Girls	All	Boys	Girls
Effortful Control	.61*** (.69***)	.61*** (.78***)	.53* (.21)	-.42*** (-.45*)	-.51** (-.38)	-.50** (-.39)	-.22 ⁺ (-.40)	-.22 (-.12)	-.22 (-.59*)
Surgency	.31** (.18)	.31 (.02)	.60*** (.58*)	-.36** (-.34*)	-.46** (-.42 ⁺)	.38 (-.10)	.36** (.43*)	.34* (.36)	.38* (.53*)
Negative Affect	-.10 (-.02)	-.21 (-.03)	-.03 (.03)	.17 (.09)	.17 (.12)	.15 (-.01)	.44*** (.33*)	.42** (.45)	.48** (.30)

* $p < .05$, ** $p < .01$, *** $p < .001$

play a significant role in successful peer play. That is, for 2- and 3- year olds effortful control, as judged by parents, was found to predict practitioner-rated interactive play. So, children who were seen by parents as having higher levels of self-regulation were more likely to be observed by practitioners to share ideas, encourage others to play and show creativity in activities. Importantly, this evidence suggests that parental views of children's temperamental disposition can predict elements of social competence outside the home environment. Further, for the sample of 3-year-olds, the effects of temperament on practitioners' overall perceptions of the children's socio-behavioural adjustment were found to be mediated by the differences in peer play, highlighting the importance of this context for the demonstration (and further refinement) of young children's ability to self regulate.

For the sample of 4-year-olds in this study, practitioners rather than parents were asked to rate temperament and they also rated interactive play characteristics as before. Again effortful control was found to positively predict characteristically interactive play patterns, and it also negatively predicted disconnected play patterns. Interestingly, early gender differences emerged in the temperament ratings. For example, surgency/extraversion was found to predict girls' interactive play characteristics positively, whereas it was a negative predictor of disconnected play among boys. This suggests that different temperamental attributes are salient for boys and girls at this stage, at least in the context of the childcare setting. These gender differences clearly need further investigation with more comprehensive temperament measures but these findings provide initial evidence of differences in the salient factors for each gender at this early stage of developing social connections.

Table C.5

Socio-emotional understanding measures as correlates and predictors of peer play

BPVS, Socio-emotional understanding and PIPPS correlations (regression coefficient)		Interactive		Disconnected		Disruptive	
		Boys	Girls	Boys	Girls	Boys	Girls
Paper 2							
Emotion understanding tasks							
	Receptive Photo		.44*				
	Receptive Puppet		.26				
	Expressive Puppet		-.00				
Paper 4							
BPVS							
		.30	.31	-.10	-.09	.06	.17
		(.01)	(-.22)	(.07)	(-.06)		
Theory of mind							
		.26	.48	-.21	-.25	-.09	-.21
		(.08)	(.52*)	(-.31)	(-.20)		
Emotion understanding							
		.17	.32	.09	.19	.09	.54*
		(.08)	(.24)	(.08)	(.25)		
Paper 5							
BPVS							
		.45 ⁺	-.00	-.34 ⁺	-.19	-.10	-.40 ⁺
		(.52*)	(-.04)	(-.40 ⁺)	(-.30)	(-.09)	(-.36)
Theory of mind							
		.19	-.05	-.17	-.05	-.03	-.21
		(-.11)	(-.06)	(-.01)	(.11)	(.05)	(.03)
Emotion understanding							
		.24	.11	-.29	-.03	-.23	-.30
		(.34 ⁺)	(.13)	(.37*)	(.09)	(-.28)	(-.12)

⁺*p* < .10, **p* < .05, ***p* < .01, ****p* < .001

Socio-emotional understanding

Table C.5 summarises the results of the analyses examining emotion understanding and/or theory of mind as predictors of peer play, across Papers 2, 4, and 5.

Theory of mind understanding

The development of theory of mind understanding is likely to be a major step for young children in making sense of relationships. Until recently, theory of mind understanding was considered to have been achieved if a standard false-belief task was successfully completed. For typically developing populations this has been shown to happen between 3 and 6 years (Wellman & Lui, 2004). At this early stage in children's social development, theory of mind understanding is considered a significant milestone in children's understanding of mental states. This insight into the reasons behind our own and other's actions is also considered to be crucial to social competence (Astington, 1999; Dunn, 1996; Wellman, 1990). The ability to recognise other's different perspectives on reality and the realisation that they will act in line with their thinking would seem to be advantageous knowledge to bring to a social interaction. Also linked to theory of mind understanding are such concepts as empathy, which should favour reciprocally responsive interactions (i.e., increasing understanding of our own and other's thinking about mental states and actions should enable emotionally closer and more responsive interactions). Thus, it is reasonable to expect that having access to such understanding should lead to enhanced social interactions and being viewed by peers as a desirable play partner. Similarly, adults observing peer play should be able to recognise children who demonstrate this level of understanding of other's

thinking and to see this as an indicator of social competence. Indeed, some existing evidence suggests that children who are recognised as socially skilled demonstrate more advanced theory of mind understanding (Caputi, et al., 2011; Hughes & Dunn, 1997, Hughes & Leekam, 2004; Slaughter, et al., 2002).

For the purposes of this thesis the assessment of children's current theory of mind understanding was achieved through a battery of tasks, in order to achieve greater reliability in measuring the key advances in mental-state understanding. The unexpected contents, unexpected location and nasty surprise activities were used to indicate children's understanding of their own and other's false belief. These assessments were administered to children of 4 and 5 years old (Papers 4 and 5). Our expectation was that being able to demonstrate theory of mind understanding would be positively related to peer popularity and recognition as being socially competent in peer play.

Interestingly, theory of mind was not shown in this study to be as important an indicator of social competence as was expected. In fact theory of mind, as indicated by the battery of tasks used in this study, was not found to be predictive of peer most-liked nominations, either for boys or girls. For children aged 4 years, variations in theory of mind understanding were found to be predictive of practitioner ratings of interactive play patterns, but only for girls (Paper 4). However, this pattern was not replicated among girls aged a year older (Paper 5); the difference in these correlations was highly significant ($z = 2.63, p < .01$). This is not to suggest that theory of mind understanding is not important in the development of social competence. It is more likely that the relationship between the two constructs is more complicated, and cannot be accounted for simply by the successful completion of the kinds of tasks used in the present studies (see Banerjee et al., in press; Carpendale & Lewis, 2006; De Rosnay & Hughes, 2006).

Emotion Understanding

Linked to the insight into our own and other's thinking related to theory of mind understanding, the ability to comprehend the emotional signals we are sending, receiving and experiencing can potentially change a difficult interaction into an empathetic and responsive one (Denham et al., 2001; Halberstadt et al., 2001). Halberstadt's pinwheel model (2001), as discussed in the introduction, links the four abilities of awareness, identification, social context and regulation to three aspects of sending, receiving and experiencing emotions to explain the complexity of emotional communication. An additional complication is that each of these elements is experienced differently in each relationship. For young children beginning to navigate their way through the emotional minefield of early peer relationships balancing their own and other's needs in an interaction can be fraught with confusion (Dunn et al., 1991; Denham et al., 1990; Denham et al., 2002; Ensor & Hughes, 2005). Children with superior skills in recognising, labeling, and predicting emotions should be better able to manage this process and display positive, interactive play.

Children's current emotion understanding was assessed in this study as they were asked to indicate, name and predict emotions using puppets and simple scenarios based on previous research by Denham (1986). This assessment was completed for some of the 2- to 3-year-olds in Paper 2, as well as the 4- and 5-year-olds in Papers 4 and 5. For the youngest children in our datasets, who were just beginning this journey, emotion understanding was found to be associated with socially competent play. Children who were able to name, recognise and predict emotions were rated by practitioners as more interactive than their peers. Therefore they were judged to demonstrate skills such as encouraging others to play, helping to resolve conflicts and sharing ideas in play. Parents' ratings of prosocial behaviour were also associated with

emotion understanding. Parents, then, were observing children with higher emotion understanding at this age sharing toys, being kind to younger children and being considerate of other's feelings.

However, for the sample of 4-year-olds (Paper 4) emotion understanding was not associated with higher ratings for interactive peer play. The children who were able to name, recognise and predict emotions were not those recognised by practitioners as helping other children, sharing ideas or encouraging others to play. In fact, for girls only, emotion understanding scores were *positively* associated with disruptive play patterns, although this association was not preserved after taking other variables into account. In contrast, during the first year of formal schooling (Paper 5) – and this time for boys only – ratings for interactive play and disconnected play were predicted by emotion understanding scores, even after controlling for possible effects of language ability. It should be noted, however, that the correlations between emotion understanding and interactive or disconnected play in boys at this age were fairly modest in size and were not significantly different from the correlation among younger boys in Paper 4. Nonetheless, the interaction between gender and emotion understanding in Paper 5 was a predictor of both interactive and disconnected play, suggesting that emotion understanding may be particularly relevant to boys' peer play at this age.

Although the straightforward pattern of association between emotion understanding and interactive/prosocial behaviour in the youngest sample falls neatly in line with expectations, the gender-related patterns observed among the older children are more difficult to interpret. The elements identified in the Halberstadt model (2001) show the complexity of the role of emotion understanding in effective interactions. However, it is important to remember effective interactions are not necessarily positive;

indeed, interactions which have been effective in achieving individual goals, may not always appear to be most important for enhancing positive connections with others. Therefore, the association between emotion understanding and disruptive play patterns for girls noted above (Paper 4) could indicate that the skills are being employed to achieve personal goals in ways that do not constitute positive interactive play, at least as judged by practitioners. Previous research asserts that girls' disruptive behaviour is mainly relationally based (Crick & Grotpeter, 1995). The findings from the current study are compatible with this and suggest that girls could be using their emotion understanding to maintain or improve their peer status, though not necessarily in a positive way.

On the other hand, boys' emotion understanding did predict practitioner ratings of interactive play patterns. This predictive association between emotion understanding and interactive peer play patterns for boys at 5 years old (Paper 5) supports recent research findings that gender differences in social development are not temporally stable (Barbu et al., 2011) and are related to the development of more complex peer play patterns (i.e., associative and cooperative play). Our findings also indicate that different elements of socio-emotional understanding may be salient for each gender at particular developmental periods. Emotion understanding may be a crucial platform for facilitating interactive peer play among boys when they enter a formal school environment, yet it may not be so relevant for girls, for whom direct socialisation of interactive behaviours may be a more important factor (see Hastings et al., 2007).

Socio-moral explanation.

Socio-moral reasoning is likely to become increasingly important as children establish peer relationships (Lane et al., 2010). We have seen that the ability to appreciate a variety of perspectives about an event is an integral part of social

competence (Rose-Krasnor, 1997). In advancing their social and moral awareness children explore the intentions and motivations that lead to their own and other's behaviour as well as the emotional consequences of different kinds of behaviour. As independence in relationships increases, children are exposed to more situations involving conflict and rule transgressions, and they must begin to explore how these can be resolved. Satisfactory resolution requires personal reflection on the moral implications of the each possible solution. The links between social cognition, behaviour and early moral awareness clearly will impact on developing social competence (Donenberg & Hoffman, 1988; Dunn et al., 2000; Malti et al., 2009).

In our final paper, with 4- to 5-year-olds in their first year of school, socio-moral understanding was indicated by children's responses to simple scenarios acted out with toy characters. After seeing one character push another off a skateboard/swing children were asked firstly if this was a good thing to do and secondly to justify their answer. The ability to explain why a protagonist's actions were wrong in these terms was used as an indicator of the children's current socio-moral reasoning. Providing such an explanation was found to be important and had implications for social status in the peer group, but only for girls. Specifically, girls who were able to give an appropriate justification of the protagonists actions were also those who received more most-liked peer nominations. In contrast, it was not found to be salient at this stage for the boys of the same age in this study, once again suggesting gender-specific patterns of associations between social understanding and peer interactions.

Gender as a moderating influence.

As clearly shown in the above summary of findings, there were several key results that indicated the correlates of early social competence may differ according to

gender. This was particularly evident in the studies involving 4 and 5 year-olds. For example, among 4-year-old girls, ratings for surgency/extraversion positively predicted practitioner judgments of interactive play, whereas effortful control was the key factor in boys' interactive play at this age. Similarly, theory of mind was found to be predictive of interactive peer play among 4-year-old girls, whereas emotion understanding predicted such play among 5-year-old boys (Paper 4). Finally, most-liked peer nominations for 5-year-old girls (Paper 5) were found to be predicted by the ability to provide an appropriate socio-moral explanation of a protagonists' moral violations. But for boys, being able to offer such an explanation had no predictive associations with playmate choices.

The above overview of results regarding temperament, theory of mind, emotion understanding, and socio-moral reasoning makes it clear that the associations of these variables with peer play were not the same for boys and girls. Previous research has suggested that the peer experience of boys and girls is different (Maccoby, 2000; Martin & Ruble, 2009; Barbu et al., 2011). Boys, it is asserted, tend to play in larger groups, be more physically active and be less focused on individual relationships. Girls, on the other hand, have been found to be more engaged in small group, intimate play contexts. This being the case it is reasonable to contend that each gender will rely on different attributes and abilities to succeed socially with their peers. The findings of this investigation support this view and provide a foundation for further more detailed exploration of boys' and girls' social experiences in peer play relationships.

Summary

This thesis builds on previous research related to young children's social development, and extends our understanding in several ways. First, we identified a number of core components of social competence through systematic observation of

peer play. Second, the programme of studies used data from the day nursery context to examine associations between parent and practitioner perspectives on children's socio-behavioural adjustment. Third, new perspectives were explored by using the context of early peer play to examine the roles of temperament and socio-emotional understanding in children's emerging social competence. Finally, the moderating influence of gender on these patterns of association was explored.

Theoretical Implications

The findings described above have a number of important theoretical implications. First, the current research highlights the need to focus on early peer play in our theoretical conceptualisations of children's social competence. Social competence is by its nature transactional: it is in interacting with others that one develops competence and it is in interacting with others that one demonstrates competence. However, the ability to demonstrate social competence is reliant on a complex integration of skills, awareness and understanding of ourselves and others.

Although social competence can be analysed in terms of a number of different levels of skill, motivation, and knowledge, as in the Rose-Krasnor model (1997), their combination in children's real interactions is the actual indicator of success. Attending childcare and school provides children with considerable access to peer play opportunities and these peer interactions become an increasingly important feature of children's daily experience. This peer play context makes visible the child's current understanding and ability to employ simultaneously the skills, awareness and understanding, which indicates his or her social competence. Building on the Rose-Krasnor model, peer play presents itself as a useful context for both assessing and scaffolding learning related to social competence. Specifically, socio-emotional

understanding, socio-moral awareness, mental-state language and temperament-related attributes would compose elements on the lower skills and knowledge level of the prism, the different patterns of salience in the context of peer play would be depicted in the mid layer in relation to balancing goals for ‘self’ and ‘other’, and finally, successful, connected peer interactions would be the epitome of *effectiveness in interaction*.

A further theoretical implication from this study is that specific dimensions of temperament play distinctive roles in children’s early peer play, which can vary across different points in the development of their social competence (Kochanska et al., 2000; Rothbart & Posner, 2005). In this study, the dimension of effortful control in particular was positively associated with interactive play. That is, parent ratings of effortful control predicted practitioner judgments of interactive peer play in children aged 2, 3, and 4 years. Taken in isolation this would imply that the children rated higher on the effortful control scale were more able to take time to read other’s signals but also to subordinate their own responses when doing so constituted a social advantage. But our results also indicated that there were effects of temperament on overall socio-behavioural adjustment (particularly hyperactivity and prosocial behaviour), which were mediated by interactive peer play, offering new evidence that this context has a central role in children’s developing social skillfulness. Thus the ability to self-regulate may be considered important not only in social interactions but also in shaping general patterns of adjustment to school (Blair et al., 2004, Fabes et al., 1999).

Peer play specifically gives an opportunity to understand the effects of different dimensions of temperament on children’s real life experiences. The particular role of effortful control has been the focus of recent longitudinal studies (Eisenberg et al., 2009; Fabes et al., 2003; Rothbart, et al., 2005). Through such studies it is becoming clear that combinations of different levels of each dimension have independent

outcomes in terms of behavioural adjustment (for review see Nigg, 2006). For example, Eisenberg et al.'s findings indicate that high impulsivity, negative emotionality and low effortful control were associated with externalising problems but low impulsivity and sadness were associated with internalising symptoms. Interestingly, over the four year period of the study patterns of change could also be seen, with effortful control being identified as a significant factor for improvement in adjustment. In the present investigation too, effortful control emerged as a consistent predictor of interactive peer play, suggesting that this dimension of temperament could be a crucial starting point for positive social developmental trajectories, potentially protecting against negative consequences of other temperamental predispositions.

Further, peer acceptance and social preference have been identified by Berdan et al., (2008) as moderators of the relationship between temperament and externalising behaviours. Their findings suggest that a combination of high perceived acceptance and social preference was a protective factor, but only for girls whose behaviour, they argue, is more influenced by social norms at this kindergarten stage. This gender difference is made even more complex by Fabes et al.'s (2003) findings, which highlighted that same-sex peer play was positively associated with school outcomes for boys with high levels of effortful control and but for girls with low levels of effortful control. Further research on the gender-related connections between temperament, peer play, and wider adjustment outcomes is clearly needed.

A final theoretical implication is that specific elements of socio-emotional understanding play different roles in emerging patterns of peer play, dependent on both age and gender. The initial observations of peer play in Paper 1 provided an opportunity to consider children's interactions in engaging and responding to playmates.

Connectedness between play partners has previously been found to relate to social

understanding and an ability to coordinate interactions (Slomkowski & Dunn 1996). In Paper 1, it was found that conversations around pretend play and role play, incorporating mental-state language, were an important indicator of positive social connections. Such interactions enabled play partners to offer and accept each other's ideas and develop shared meaning as demonstrated in their play themes. However, it was not clear from this study whether the children had explicit knowledge of other's mental states and whether they were using such knowledge intentionally (Harris, et al., 2005, Lillard & Flavell 1992, Mitchell & Neal 2005).

When explicit tests of mental-state understanding were used in the present investigation, links with peer play and sociometric choices were found to vary across age, group and gender. This carries important implications for our conceptualisation of the role played by socio-emotional understanding in early social competence. Rather than assuming that advances in emotion understanding, theory of mind, or socio-moral reasoning are generally 'good' for promoting positive social interactions, the findings reported here suggest that the effects need to be understood in the context of what is important for boys and girls at different points in their development. This fits with Carpendale and Lewis's (2006) argument, which suggests that social understanding develops within the *social process* of interaction with other agents, rather than being based on a within-individual construction of a theory of mind that is then applied to interactions. Many of the potentially important interactions highlighted by Dunn and Cutting, (1999) and Hughes and Leekam (2004) – conversations about inner states, shared pretend play, narratives, deception, jokes, talk about shared memories and negotiation of conflict – are typically occurring interactions in peer play. Yet, the precise way in which these events occur, and the significance of them for shaping social understanding and future social interactions, needs careful attention.

For example, in the present studies, for 2-year-olds there were associations between emotion understanding and both practitioner rated interactive play patterns and parent rated prosocial behaviours. This suggests that at this early stage adults perceive children who are able to recognise and label emotion expressions as being positively interactive and prosocial. But these findings may also indicate a dependence at this age on facial expressions rather than verbal responses for emotional cues, so children with early basic emotion understanding (i.e., recognising and labeling facial expressions) are perceived by adults as more responsive and engaging in interactions. Later, at 4 years old theory of mind understanding predicted practitioner ratings of interactive play, but only for girls. By this age same-sex peer interactions become the norm and more accessible through preschool provision, and the priority for girls is to engage in small group intimate relationships. Therefore those who are able to understand their own and other's representational mental states are most likely to be at an advantage and be recognised by adults as interactive in their peer play. Boys however, at this stage are more focused on large group play in which interactions are sustained through competition and vying for dominance (Maccoby, 2002). Finally, for 5-year-old boys, emotion understanding was salient in practitioner perceptions of their interactive play whereas for girls socio-moral explanation was predictive of peer most-liked nominations. For boys, this increase in importance may be explained by the relevance of emotion understanding for sustaining interactive connections with others, perhaps in the context of particular games (e.g., imaginative and fantasy play, often related to television or story characters). However, for girls being able to interpret and give an explanation of other's reactions to incidents could potentially increase their peer status by enabling them to resolve conflicts. These examples suggest that the importance of specific aspects of socio-emotional understanding will vary according to the social

demands at different developmental stages. Children who have the required understanding at the appropriate time will be likely to be at a social advantage – at least until the social demands evolve and change.

Implications for ‘early years’ policy and practice

In the UK, childcare provision is currently required to comply with the Early Years Foundation Stage Guidance (EYFS) that provides detailed basic welfare requirements and a principled approach to supporting, in partnership with parents, children’s development from birth to 5 years old (DCFS, 2008). This guidance has significantly raised the profile of children’s early learning, particularly relevant to this thesis, in relation to Personal, Social and Emotional Development. The EYFS is currently under review with a revised version to being implemented over the coming 18 months. The importance of young children’s social, emotional development has also been highlighted in the recent government reports “Early Intervention: The Next Steps.” (Cabinet Office, 2011) and “The Foundation Years: preventing poor children becoming poor adults.” (Cabinet Office, 2010). Specifically, these reports suggest that intervention focused on positive social and emotional development in the early years of a child’s life can both improve life chances and begin to reduce intergenerational patterns of poor outcomes. The need for effective early intervention strategies to support positive social and emotional development of young children is currently seen as a political, economic and educational priority.

An important practical implication of our findings is the need to focus on young children’s real life experiences of peer play in order to gather information about current competencies, identify individuals with potential delays or impairments in social competence, and scaffold future learning. The multi-informant (i.e., parents,

practitioners and peers) approach of this thesis provided evidence from different perspectives that resulted in a comprehensive data set. In particular, the methods used were focused on gaining insight into children's real life experiences in social relationships (Brownell et al., 2006; Sebanc, 2003). The chosen context for carrying out this research was day nursery provision because this is an increasing part of young children's early social experience. The findings showed that children's social competence (i.e., being *effective in interactions*), was predicted by a number of different variables. Constructs such as temperament, theory of mind, emotion understanding and socio-moral awareness were found to be predictive of adult ratings of both prosocial and interactive behaviours. The relative importance of these constructs was also shown to be influenced by gender in the peer play context. Although the results clearly need to be replicated and extended in future research, the preliminary patterns carry important practical implications for policymakers and practitioners working with young children.

First, using careful observations of early peer play can aid in the identification of children who may be at risk of poor social interactions, thus enabling practitioners to work on preventing, rather than just remediating at a later point in time, entrenched patterns of disconnected or disruptive of play (see Denham & Burton, 1996). Increasing adult understanding of the importance of peer play as a context for social learning would be an important first step in appropriately scaffolding children's learning (Denham, et al., 1995; Webster-Stratton & Hammond, 1997). In particular, developing the concept of social competence as a life skill and as *effectiveness in interaction* rather than "being seen to be nice by adults" would significantly change the adult role in developing children's understanding of interactions. Through an understanding of social connection as an important experience in its own right, peer play can also be recognised as a context for substantial emotional and behavioural learning. Supporting practitioners

to recognise children's current peer play patterns could be a first step towards effectively scaffolding children's learning. Specifically, peer play provides an important opportunity to reflect with children on ways to join a game, invite others to play and ways to begin to resolve conflicts. By using the peer play context for this learning those regularly demonstrating disconnected or disruptive play patterns can easily be recognised and appropriate activities used to facilitate more successful interactive play experiences.

A further practical implication of the present research stems from the preliminary findings of changing convergence and divergence between parent and practitioner perspectives on children's social behaviour. These patterns suggest that by engaging parents in positive dialogue about children's temperament and interactions with peers, a shared understanding of developing social competence can be consolidated. A major focus in early years provision, supported by the Early Years Foundation Stage Guidance (2008) has been to encourage working in partnership with parents. The fact that parental judgments of children's temperament were able to predict children's responses in contexts outside of the home strengthens the case for engaging positively with parents. The challenge is for practitioners to take the lead in establishing a dialogue with all parents based on the premise that they have unique perspectives to contribute which enhance the shared understanding of the child's social competence.

The results of this research suggest that discussions about the peer play context may be a particularly important springboard for such dialogue between parents and practitioners. In contrast to disputes about how the child behaves towards adults (e.g., 'He doesn't do that with me'), the opportunity for respectful sharing of what constitutes interactive peer play, informed by shared observations, may help to develop further

understanding between parents and practitioners (Mendez, 2010). To summarise, the development of young children's social competence in peer play is a common interest of both parents and practitioners, and it therefore provides an ideal basis for exploring and understanding children's social and emotional learning.

A closely related implication of the present investigation is that practitioners' dialogue with parents about children's peer play can offer an opportunity to inform and enhance approaches to parenting. The influence of warm, responsive parenting has been shown to moderate some risks associated with poor social outcomes such as socio-economic status (see Belsky et al., 2007; Belsky, Rovine & Taylor, 1984; Calkins & Keane 2009; Dodge et al., 1994; Denham, Mitchell-Copeland, Strandberg, Auerbach & Blair, 1997). Consequently, support for positive parenting is beginning to be acknowledged as a significant early intervention (Cabinet Office 2010, 2011). Yet as children start to extend their independent social interactions between 2 and 3 years of age (Belsky et al., 1996; Degnan et al., 2008), opportunities for parents to discuss the likely challenges before they are overtaken by them are scarce. By encouraging parents and practitioners to share developmentally appropriate expectations of children's social competencies in the peer play context, the prospects for more responsive parenting can be established.

Practitioners, from their position of experience of larger numbers of children, may be more likely to imply that early difficulties in peer interaction are a passing phase than to engage in constructive problem solving which relates to the individual children and their families. By providing information and guidance that supports parents and practitioners to have developmentally appropriate expectations of children's social connections a more positive shared understanding of children's social competencies could be established.

A further implication of recent research is that key constructs related to the development of social competence cannot be separated out and taught in isolation to improve children's peer relationships. The ability of a practitioner to scaffold children's social competence is not simply a matter of 'managing behaviour' but instead involves promoting the underlying skills in social-emotional understanding and self-regulation, so that children can access the learning opportunities afforded by peer play. The difference in this approach is clearly evident when looking at practitioners' role in mediating peer disputes. Here, the goal must be to establish the role of the adult as a scaffolder of the child's learning rather than simply as an enforcer of control and manager of behaviour. Further, working with parents to develop mediation and conflict resolution skills is likely to increase adult confidence in dealing with children's conflicts as well as scaffolding children's learning more effectively (for example see Smith & Ross, 2007).

Moreover, as in other areas of learning, children's individual differences (i.e., the 'unique child' as described in the 2008 EYFS guidance) and developmental progress in a variety of different areas – including temperamental predispositions and socio-emotional understanding – should be particularly salient in informing adult expectations and support for children's learning related to social competence. Specific aspects of previous research such as the importance of mental state language could reasonably be integrated into practitioner strategies to supporting children's understanding of their own and other's thinking. For example, mother's mental state language has been found to be predictive of theory of mind development (Ruffman et al., 2002). This suggests that explicit talk involving a sensitive adult about emotions and mental states is beneficial for young children. But, beyond the family, talk within the peer play context in childcare settings may also be highly significant. Our preliminary observational

study indicated that pretend and role play with peers was an important vehicle for exploring other's thinking, mental states, perspectives, and reactions, and thereby for forming connected conversations with each other. By supporting this process with appropriate talk about emotions and mental states, practitioners – in childcare settings as well as in the home – could reasonably be expected to enhance children's insight into their own and other's thinking.

To summarise, the findings from this study suggest that there are three key elements which need to be a part of effective interventions. Firstly, children's peer play experiences must be valued as important both for increasing our understanding and as a context for intervention. Secondly, working partnerships between parents and practitioners need to be consolidated through effective sharing of the unique perspectives that each brings to bear on the child. Thirdly, a number of key aspects of socio-emotional understanding need to be integrated into children's learning opportunities in effective programmes. These elements would need a much higher profile in practitioner training than at present to have a consistently positive impact on children's daily experience.

Limitations and future directions for research

The conclusions that can be drawn from this research are restricted by a number of important limitations. First, although several potential factors involved in young children's developing social competence were explored in this research there are some notable omissions. For example, it would have been illuminating to analyse data related to socioeconomic status and parental education, family structure and parenting experiences, and the amount and quality of daycare experience. Each of these influences have been shown to be significant in children's daily lives and impact on their social

connections (Barnes et al., 2010; Belsky, 1988; Howes & Olenick, 1986; Pettit et al., 1997; Sammons, Elliot, Sylva, Melhuish, Siraj-Blatchford, & Taggart, 2004). Our focus was on exploring the roles of temperament and social-emotional understanding as core constructs in social competence, but we recognised from the outset that a variety of socialisation processes are involved in each child's social developmental trajectory. Future research can test more specifically how some of the processes described in this thesis interact with the various environmental experiences to which the child is exposed.

One aspect of environmental experience that will be particularly important to study carefully, using the peer play context as a focus of attention, is the childcare setting itself. As noted earlier, the relationships between parents and practitioners will vary according to the quality of the day care, as will the interactions with children (Howes & Olenick, 1986; Lamb, 2000; Sylva et al., 2006). Higher quality provision is often characterised by well trained, emotionally mature adults who recognise and empathise with the excitement and challenges of being a young child. Their responses to children's emotional expressions, whether joy, anger or sadness, are sensitive and in tune with the individual child's needs and current stage of development. However, not all provision is of high quality and in poorer quality settings there are children and adults whose daily experiences could be significantly improved through learning and understanding the importance of – and factors involved in – successful social connections.

In addition, we must acknowledge that many aspects of children's cognitive functioning that might be relevant were not explored in this thesis. Most obviously, it would be helpful for future research to tease apart the relative influences of inhibitory control as an aspect of executive function, and the temperament dimension of effortful control (Hughes et al., 2000). Both relate to the ability to select a subdominant response

over a dominant one and both have been shown to predict internalising and externalising problem behaviours and to enhance school readiness and academic competence (Eisenberg et al., 2009; Hughes & Ensor, 2011; Kochanska et al., 2000). However, the link between the two constructs is unclear although a recent suggestion from is that neuroscientific techniques integrated with psychological research could significantly deepen our understanding (Rothbart & Posner, 2005).

A further limitation relates to our assessment of social competence itself. The definition of social competence as *effectiveness in interaction* (Rose-Krasnor, 1997) was useful in exploring the relative roles of constructs such as emotion understanding, theory of mind and socio-moral reasoning. But by relying heavily on adult perceptions of interactive and prosocial behaviour as the indicators of *effectiveness in interaction* we did not secure evidence of whether the interactions were in fact effective for the children involved. For example, adults may have perceived prosocial or interactive responses as effective even where children were overly submissive and unable to maintain the balance between their own and other's needs. Indeed, Paper 5 provided some clear evidence of dissociation between teacher-rated interactive play and the children's own playmate choices. Thus, balancing questionnaires on adult perceptions with more direct observation and child self-reports will be important for future work. This will provide important information about the relationship between adult perceptions and child experiences of peer play interactions (Adamson et al., 1987; Fantuzzo & McWayne, 2002), and will enable a more comprehensive understanding of effective interactions in peer play.

In a similar way, our assessments of emotion understanding and theory of mind were clearly limited to a small set of tasks. For example, although the Denham (1986) puppet task was sufficient to show some connections between emotion understanding

and interactive play, more comprehensive emotion understanding would have been useful to inform our conclusions (De Rosnay et al., 2004; Harris et al., 2005; Pons, Lawson, Harris & De Rosnay, 2003). The complexity of the theory of mind assessments could also have been extended to include other aspects of mental-state reasoning, including more naturalistic tests (e.g., faux pas task, understanding of sarcasm) as well as more advanced tests of second-order false belief (see Banerjee et al., in press; Hughes et al., 2000). On a related point, although the BPVS assessment gave an indication of the children's receptive language ability, future research would benefit from more comprehensive analysis of language (see De Rosnay & Hughes, 2006). The findings from our first paper indicated that particular forms of language may be important in children's engagement in connected conversations. In line with previous work by Garvey and Kramer (1989), children's engagement in connected conversations in the course of their pretend and role play appeared to involve distinctive linguistic forms, including mental-state language. Language assessments that take account of detailed features of mental-state understanding as well as syntactic and pragmatic awareness could provide important insight into individual differences in levels of engagement in pretend play (Harris et al., 2005; Pons et al., 2003).

Finally, the methods used in the research need to be substantially extended in order to strengthen our understanding of the connections between temperament, socio-emotional understanding, and peer play. First, the samples used in the various studies reported here, though ethnically diverse and from varying SES backgrounds, were small and limited to one geographical area. Future research with larger and more varied samples is needed in order to be confident about generalising the pattern of results obtained in the present studies. Perhaps more importantly, the present studies involved children aged 2, 3, 4, and 5 years, but did not evaluate changes over time in children

using a longitudinal design. This limits the capacity to draw conclusions about the causal directions of all the associations discussed in this thesis. For example, in a longitudinal study of sufficient power it would have been possible to consider whether the emotion understanding identified at 2 years old was a precursor to higher ratings for interactive play at 3, 4 and 5 years and whether this was also related to language ability. Importantly a longitudinal design could also have explored more effectively the possible role of childcare provision as a protective factor, as a result of the increased access to peer play and available adults to scaffold social learning.

The present studies have explored important issues regarding peer play not only as an important part of young children's lives but also as a significant opportunity to scaffold their social competence. The extensive use of childcare potentially provides our youngest children with an exciting context in which to explore and learn about emotions and social connections. However, for this to be effective and supportive it relies on the adults' understanding and skill to create a positive emotional environment. The findings reported here add to our knowledge of the complexity of early peer play, and provide a foundation for further research and applied work with preschool children.

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Appendix 1: Questionnaires

Child Behaviour Questionnaire (Very short form)

These statements describe children's reactions to a number of situations. We would like you to tell us what your child's reaction is likely to be in those situations. There are, of course, no "correct" ways of reacting; children differ widely in their reactions, and it is these differences we are trying to learn about. Use the following scale to indicate with a circle how well a statement describes your child. If you have not seen your child in the situation or it is not applicable circle NA.

Extremely untrue	Quite untrue	Slightly untrue	Neither true nor untrue	Slightly true	Quite true	Extremely true	Not applicable
1	2	3	4	5	6	7	NA
1. Seems always in a big hurry to get from one place to another.							
1	2	3	4	5	6	7	NA
2. Gets quite frustrated when prevented from doing something s/he wants to do.							
1	2	3	4	5	6	7	NA
3. When drawing or colouring in a book, shows strong concentration..							
1	2	3	4	5	6	7	NA
4. Likes going down high slides or other adventurous activities.							
1	2	3	4	5	6	7	NA
5. Is quite upset by a little cut or bruise.							
1	2	3	4	5	6	7	NA
6. Prepares for trips and outings by planning things s/he will need.							
1	2	3	4	5	6	7	NA
7. Often rushes into new situations.							
1	2	3	4	5	6	7	NA
8. Tends to become sad if the family's plans don't work out.							
1	2	3	4	5	6	7	NA
9. Likes being sung to.							
1	2	3	4	5	6	7	NA
10. Seems to be at ease with almost any person.							
1	2	3	4	5	6	7	NA
11. Is afraid of burglars or the "boogie" man.							
1	2	3	4	5	6	7	NA
12. Notices it when parents are wearing new clothing.							
1	2	3	4	5	6	7	NA
13. Prefers quiet activities to active games.							
1	2	3	4	5	6	7	NA
14. When angry about something, s/he tends to stay upset for ten minutes or longer.							
1	2	3	4	5	6	7	NA
15. When building or putting something together, becomes very involved in what s/he is doing, and works for long periods.							
1	2	3	4	5	6	7	NA
16. Likes to go high and fast when pushed on a swing.							
1	2	3	4	5	6	7	NA
17. Seems to feel depressed when unable to accomplish some task.							
1	2	3	4	5	6	7	NA
18. Is good at following instructions.							
1	2	3	4	5	6	7	NA



Please go to next page



Extremely untrue 1	Quite untrue 2	Slightly untrue 3	Neither true nor untrue 4	Slightly true 5	Quite true 6	Extremely true 7	Not applicable NA
19. Takes a long time in approaching new situations.							
1	2	3	4	5	6	7	NA
20. Hardly ever complains when ill with a cold.							
1	2	3	4	5	6	7	NA
21. Likes the sound of words, such as nursery rhymes.							
1	2	3	4	5	6	7	NA
22. Is sometimes shy even around people s/he has known a long time.							
1	2	3	4	5	6	7	NA
23. Is very difficult to soothe when s/he has become upset.							
1	2	3	4	5	6	7	NA
24. Is quickly aware of some new item in the living room.							
1	2	3	4	5	6	7	NA
25. Is full of energy, even in the evening.							
1	2	3	4	5	6	7	NA
26. Is not afraid of the dark.							
1	2	3	4	5	6	7	NA
27. Sometimes becomes absorbed in a picture book and looks at it for a long time.							
1	2	3	4	5	6	7	NA
28. Likes rough and rowdy games.							
1	2	3	4	5	6	7	NA
29. Is not very upset at minor cuts or bruises.							
1	2	3	4	5	6	7	NA
30. Approaches places s/he has been told are dangerous slowly and cautiously.							
1	2	3	4	5	6	7	NA
31. Is slow and unhurried in deciding what to do next.							
1	2	3	4	5	6	7	NA
32. Gets angry when s/he can't find something s/he wants to play with.							
1	2	3	4	5	6	7	NA
33. Enjoys gentle rhythmic activities such as rocking or swaying.							
1	2	3	4	5	6	7	NA
34. Sometimes turns away shyly from new acquaintances.							
1	2	3	4	5	6	7	NA
35. Becomes upset when loved relatives or friends are getting ready to leave following a visit.							
1	2	3	4	5	6	7	NA
36. Comments when a parent has changed his/her appearance.							
1	2	3	4	5	6	7	NA

Penn Peer Interactive Play Scale

PRACTITIONER

In the past **two months**, indicate how much you have observed the following behaviours in this child **during free play** situations by circling the appropriate number.

	Never	Seldom	Often	Always
1. Helps other children	1	2	3	4
2. Starts fights and arguments	1	2	3	4
3. Is rejected by others	1	2	3	4
4. Takes turns	1	2	3	4
5. Hovers outside other children's play activity	1	2	3	4
6. Shares toys with other children	1	2	3	4
7. Withdraws	1	2	3	4
8. Demands to be in charge	1	2	3	4
9. Wanders aimlessly	1	2	3	4
10. Rejects the play ideas of others	1	2	3	4
11. Is ignored by others	1	2	3	4
12. Tells tales, tattles	1	2	3	4
13. Helps settle peers conflicts	1	2	3	4
14. Destroys others' things	1	2	3	4
15. Disagrees without fighting	1	2	3	4
16. Refuses to play when invited	1	2	3	4
17. Needs help to start playing	1	2	3	4
18. Verbally offends others (name calling)	1	2	3	4
19. Directs others' action politely	1	2	3	4
20. Cries, whines, shows temper	1	2	3	4
21. Encourages others to join play	1	2	3	4
22. Grabs others' things	1	2	3	4
23. Comforts others who are hurt or sad	1	2	3	4
24. Confused in play	1	2	3	4
25. Verbalises stories during play	1	2	3	4
26. Needs adult direction	1	2	3	4
27. Disrupts play of others	1	2	3	4
28. Seems unhappy	1	2	3	4
29. Shows positive emotions during play (e.g. smiles, laughs)	1	2	3	4
30. Is physically aggressive	1	2	3	4
31. Shows creativity in making up play stories and activities	1	2	3	4
32. Disrupts group during transition from one activity to another	1	2	3	4

Goodman Strengths and Difficulties Questionnaire

Please tell us about your 2 year old child who is currently attending the day nursery.

For each item, please put a circle around 0, 1, or 2 to answer each question.

0 = *Not true* 1 = *Partly true* 2 = *Certainly true*

It would help us if you answered all items as best you can even if you are not absolutely certain or the item seems daft! Please give your answers on the basis of your child's behaviour over the last six months.

	Not true	Partly true	Certainly true
1. Considerate of other people's feelings.	0	1	2
2. Restless, overactive, cannot stay still for long.	0	1	2
3. Often complains of headaches, stomach-aches or sickness.	0	1	2
4. Shares readily with other children (treats, toys, etc).	0	1	2
5. Often has temper tantrums or hot tempers.	0	1	2
6. Rather solitary, tends to play alone.	0	1	2
7. Generally obedient, usually does what adults request.	0	1	2
8. Many worries, often seems worried.	0	1	2
9. Helpful if someone is hurt, upset or feeling ill.	0	1	2
10. Constantly fidgeting or squirming.	0	1	2
11. Has at least one good friend.	0	1	2
12. Often fights with other children or bullies them.	0	1	2
13. Often unhappy, down hearted or tearful.	0	1	2
14. Generally liked by other children.	0	1	2
15. Easily distracted, concentration wanders.	0	1	2
16. Nervous or clingy in new situations, easily loses confidence.	0	1	2
17. Kind to younger children.	0	1	2
18. Often argumentative with adults.	0	1	2
19. Picked on or bullied by other children.	0	1	2
20. Often volunteers to help others (parents, teachers, children).	0	1	2
21. Can stop and think things out before acting.	0	1	2
22. Can be spiteful to others.	0	1	2
23. Gets on better with adults than with other children.	0	1	2
24. Many fears, easily scared.	0	1	2
25. Sees tasks through to the end.	0	1	2